HS 068: PHARMACY TECHNICIAN

Date Submitted: Tue, 07 Mar 2023 23:04:24 GMT

Originator

kspurgin

Justification / Rationale

The course is currently offered in person only. However, the Health Sciences department would like the flexibility to offer the course in an online or hybrid format in the future. By offering the course in an online or hybrid format, the department can strengthen and enhance the existing curriculum in a number of ways. Here are some examples: Offering the course in an online or hybrid format can provide greater flexibility to students, allowing them to complete the coursework on their own schedule and at their own pace. This can help to accommodate the diverse needs of students, including those with work, family, or other commitments. Offering the course in an online or hybrid format can increase access to education, particularly for students who may not have access to in-person courses due to geographic or other barriers. Offering the course in an online or hybrid format can help to integrate technology into the curriculum, providing students with the opportunity to learn and practice technology skills that are essential in the healthcare field. Offering the course in an online or hybrid format can enhance student support, providing students with access to additional resources, such as online tutoring, academic advising, and other support services

Effective Term

Spring 2024

Credit Status

Credit - Degree Applicable

Subject

HS - Health Sciences

Course Number

068

Full Course Title

Pharmacy Technician

Short Title

PHARM TECH

Discipline

Disciplines List
Health

Modality

Face-to-Face
Hybrid

Catalog Description

This course provides technical and practical training to prepare students for the Pharmacy Technician Certification Board exam and to function as a competent entry-level assistant to the pharmacist. Topics covered include pharmacy law and regulations, sterile and non-sterile compounding, pharmacy billing and reimbursement, pharmacy inventory management, and pharmacy system usage and application.

Schedule Description

This course provides technical and practical training to prepare students for the Pharmacy Technician Certification Board exam and to function as a competent entry-level assistant to the pharmacist. Advisory: HS 065, HS 067, HS 074, ENG 061 & MATH 060

Lecture Units

3

Lecture Semester Hours

54

Lab Units

1

Lab Semester Hours
54

In-class Hours
108

Out-of-class Hours
108

Total Course Units
4

Total Semester Hours
216

Prerequisite Course(s)
Advisory: HS 065, HS 067, HS 074, ENG 061 & MATH 060

Required Text and Other Instructional Materials

Resource Type
Book

Open Educational Resource
No

Author
Davis, K Guerra, A (2019)

Title
Mosby's Pharmacy Technician: Principles and Practice

Edition
5th

City
St. Louis, Missouri

Publisher
Elsevier

Year
2019

College Level
Yes

Flesch-Kincaid Level
11.5

ISBN #
978-0-323-44356-2

Class Size Maximum
45

Entrance Skills
Use drug labels to identify drugs and find appropriate reference materials with drug information

Requisite Course Objectives
ENG 061-Demonstrate the ability to use research skills including library resources such as books, periodicals, electronic databases and online resources such as the internet.

HS 065-Utilize pertinent drug information using appropriate reference materials

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Entrance Skills

Demonstrate basic use of software applications that pertain to health science and allied health fields.

Requisite Course Objectives

HS 074-use the following software/programs at the beginner level: 1.Search database2.Electronic Health Records (EHR) to gather and input data. 3.Excel spreadsheet to enter date and produce graphs, 4.SPSS for data entry and statistical analysis,5.Microsoft Project to produce a Work Breakdown Structure 6.PowerPoint to produce a presentation,7.Software to integrate applications into documents8.Geographical Information system (GIS) 9.And others

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Entrance Skills

Understand important legal issues surrounding health care records and personal information including patient confidentiality.

Requisite Course Objectives

HS 067-Chart procedures as they relate to clients' responses both prior and post medication administration
HS 074-explain the legal and ethical application connected with using software for client data including HIPPA, Security, and plagiarism.

Entrance Skills

Recognize and interpret commonly used abbreviations and medical notations for drug dosages, route, time, and frequency.

Requisite Course Objectives

HS 067-Interpret the notation for dosage, route, and frequency of drugs
HS 067-Recognize and interpret drug labels
HS 067-Chart procedures as they relate to clients' responses both prior and post medication administration

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Entrance Skills

Recognize and interpret doctor orders, safe dose ranges, and drug labels.

Requisite Course Objectives

HS 067-Interpret the notation for dosage, route, and frequency of drugs
HS 067-Recognize and interpret drug labels

Entrance Skills

Identify basic drug forms and methods of drug administration

Requisite Course Objectives

HS 067-Recognize and select the proper equipment for medication administration

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Entrance Skills

Understand basic mathematical calculations and dimensional analysis to calculate medication dosages and drug reconstitution/ dilutions.

Requisite Course Objectives

HS 067-Perform basic mathematical computations that involve Arabic numbers, Roman numerals, fractions, and decimals
HS 067-Utilize basic formulae to calculate med dosages for oral and parenteral needs
HS 067-Calculate dosages for the pediatric client
MATH 060-Compute using the four basic operations of addition, subtraction, multiplication, and division on the rational numbers in both fraction and decimal form.
MATH 060-Apply the basic operations to solve application problems that involve whole numbers, integers, and rational numbers.
MATH 060-Apply the order of operations to simplify expressions involving several operations using rational numbers.
MATH 060-Use rounding and estimation to solve problems involving rational numbers.
MATH 060-Employ decimal notation and place value to compare, order, and round numbers.
MATH 060-Use the concept of ratio to determine the solution to a proportion problem.
MATH 060-Apply methods of conversion between percents, decimals, and fractions.

Entrance Skills

Identify the difference between metric and household units of measurement and be able to convert between them using dimensional analysis.

Requisite Course Objectives

HS 067-Describe the basic systems of measurement used to calculate dosages
MATH 060-Recognize and convert between units of measurements in the American and metric systems.

Entrance Skills

Demonstrate the ability perform research on drug effects and disease processes using electronic databases and online resources.

Requisite Course Objectives

ENG 061-Demonstrate the ability to use research skills including library resources such as books, periodicals, electronic databases and online resources such as the internet.

Course Content

1. History of Medicine and Pharmacy
2. Pharmacy Law, Ethics, and Regulatory Agencies
3. Competencies, Associations, and Settings for Technicians
4. Communication and Role of the Technician with the Customer/Patient
5. Dosage Forms and Routes of Administration
6. Conversions and Calculations
7. Drug Information References
8. Community Pharmacy Practice
9. Institutional Pharmacy Practice
10. Additional Pharmacy Practice Settings
11. Pharmacology and Medications
12. Drug Classifications
13. Therapeutic Agents for Biological Systems

Lab Content

1. Bulk Repackaging and Non-Sterile Compounding
2. Aseptic Technique and Sterile Compounding
3. Pharmacy Billing and Inventory Management
4. Medication Safety and Error Prevention
5. Pharmacy Operations Management

Course Objectives

	Objectives
Objective 1	Identify federal laws, regulations, and practices in the field of pharmacy.
Objective 2	Interpret the notation and abbreviations for dosage, route, and frequency of drugs.
Objective 3	Explain prescription processing appropriate for community and institutional pharmacies.
Objective 4	Demonstrate use of basic pharmacy software, drug stock management, and billing components.
Objective 5	Discuss the most commonly used drugs within each body system using appropriate reference materials.
Objective 6	Demonstrate appropriate medication administration.
Objective 7	Calculate medication dosages for oral and parenteral drug routes
Objective 8	Describe sterile technique.
Objective 9	Identify the role of the pharmacy technician.
Objective 10	Demonstrate effective communication techniques for collaboration with physicians and with customers.

Student Learning Outcomes

	Upon satisfactory completion of this course, students will be able to:
Outcome 1	Discuss the ethical, legal, and practice principles for community and institutional pharmacies.
Outcome 2	Demonstrate processing of medication orders.
Outcome 3	Identify commonly used therapeutic agents and discuss the appropriate medication safety considerations.
Outcome 4	Demonstrate techniques for sterile compounding, non-sterile compounding, and bulk repackaging.

Methods of Instruction

Method	Please provide a description or examples of how each instructional method will be used in this course.
Lecture	Approximately 2 hours per week will consist of lecture material reviewing course content from the textbook. PowerPoint presentation, with question and answer segments involving students will take place in each lecture session.
Laboratory	With cooperation with the Chemistry department, students will work in a laboratory setting using simulated medications.
Technology-based instruction	Students will work with pharmacy billing and inventory management software that is currently in use in local hospital and community pharmacies
Experiential	Utilizing community partners, students will have an opportunity to observe day-to-day functioning of a community pharmacy and hospital based pharmacy.
Clinical	In conjunction with the nursing department, students will participate in simulated clinical environments where they can practice medication compounding and administration
Role Playing	Students will practice taking medication orders, fill simulated prescriptions, and interact with students role-playing as patients in a simulated pharmacy setting.
Individualized Study	Students will perform individual research into commonly used drugs for diseases impacting specific body systems
Discussion	Approximately 30 minutes per week will consist of group discussions during lecture sessions. These discussions will allow student to consolidate and deepen their understanding of the lecture materials.
Individualized Study	Approximately 30 minutes per week will consist of individualized study during lecture sessions. This time will allow student to consider and apply their understanding of the lecture materials.
Laboratory	Students will practice techniques for bulk repackaging. This includes performing all necessary calculations before beginning and assembling the equipment needed. Students will also learn to identify the appropriate size and container to be used. Students will also practice accurate labeling procedures.
Laboratory	Students will practice techniques for non-sterile compounding. This includes reviewing and practicing room cleaning and maintenance procedures, selection and use of graduated cylinders, use of mortar and pestles. Students will compound preparations according to the prescription formula. Students will assess the weight variation, consistency of mixture, color clarity and pH of the preparation. Students will determine the beyond-use dating for medications and learn to complete compound labels and log sheets for their compounded medications.
Laboratory	Students will practice techniques for aseptic techniques in a fume hood. This will include utilizing different types of fume hoods, how often fume hoods must be inspected, and proper fume hood cleaning techniques.

Laboratory	Students will practice techniques for sterile compounding. This will include application of Standard Precautions necessary when preparing sterile medications. Students will demonstrate proper aseptic technique and demonstrate the steps in drawing up medications from an ampule or vial. Students will practice proper disposal of needles, vials and cytotoxic substances.

Methods of Evaluation

Method	Please provide a description or examples of how each evaluation method will be used in this course.	Type of Assignment
Mid-term and final evaluations	Midterm Exams, Lab Final; Final exam	In Class Only
Presentations/student demonstration observations	Students will present individual research into commonly used drugs for diseases impacting specific body systems	In and Out of Class
Written homework	Chapter quizzes, Study guide note assignments	Out of Class Only
Student participation/contribution	Peer-critique of role-playing exercises in a simulated pharmacy setting.	In Class Only
Field/physical activity observations	Students write reflections of their observations of day-to-day functioning of a community pharmacy and hospital based pharmacy.	Out of Class Only
Laboratory projects	Students will demonstrate techniques for bulk repackaging, non-sterile compounding, aseptic techniques in a fume hood, and sterile compounding.	In Class Only
Computational/problem-solving evaluations	Students will demonstrate ability to perform drug dosage calculations	In Class Only

Assignments

Other In-class Assignments

1. Student presentations on commonly used drugs for diseases impacting specific body systems
2. Student group discussion session participation
3. Individualized study involving students summarizing what they learned during a lecture segment by making connections to real-world scenarios
4. Chapter and drug dosage calculation quizzes will take place regularly during lecture sessions.
5. Lab projects allowing students to demonstrate they have achieved basic competency for bulk repackaging. This includes performing all necessary calculations before beginning and assembling the equipment needed. Students will also demonstrate the ability to identify the appropriate size and container to be used. Students will also demonstrate the ability to accurately label medications.
6. Lab projects allowing students to demonstrate they have achieved basic competency for non-sterile compounding. Students will demonstrate proper room cleaning and maintenance procedures, selection and use of graduated cylinders, use of mortar and pestles. Students will compound preparations according to the prescription formula. Students will assess the weight variation, consistency of mixture, color clarity and pH of the preparation. Students will complete compound labels and log sheets for their compounded medications.
7. Lab projects allowing students to demonstrate they have achieved basic competency for aseptic techniques in a fume hood. Students will demonstrate proper fume hood cleaning techniques.
8. Lab projects allowing students to demonstrate they have achieved basic competency for sterile compounding. Students will demonstrate application of Standard Precautions necessary when preparing sterile medications. Students will demonstrate proper aseptic technique and demonstrate the steps in drawing up medications from an ampule or vial. Students will demonstrate proper disposal of needles, vials and cytotoxic substances.
9. Peer-critique of role-playing exercises in a simulated pharmacy setting.

Other Out-of-class Assignments

1. Students will write reflections of their field observations of a community pharmacy and hospital based pharmacy. This will require critical thinking and the application of concepts discussed in lecture and practiced in the laboratory setting.
2. Students will practice using pharmacy billing and inventory management software that is currently in use in local hospital and community pharmacies.
3. Students will study and reflect on materials covered in class in preparation for written and laboratory practical exams. This expected to take approximately two hours for every one hour spent in class.

4. Students will perform independent reading assignments that will require critical thinking regarding current issues and challenges facing the pharmacy industry.

Grade Methods

Letter Grade Only

Distance Education Checklist

Include the percentage of online and on-campus instruction you anticipate.

Online %

50

On-campus %

50

Lab Courses

How will the lab component of your course be differentiated from the lecture component of the course?

The lab component of the Pharmacy Technician course will be differentiated from the lecture component of the course by providing hands-on training and practice in technical skills related to pharmacy operations and medication management. The lab component will allow students to apply the knowledge and concepts they learn in the lecture component to real-world scenarios, and to develop the technical and practical skills necessary for entry-level pharmacy technician positions. Specifically, the lab component of the course will focus on four key areas:

Compounding: The lab component will provide training and practice in both sterile and non-sterile compounding techniques. Students will learn how to prepare medications in various forms and dosages, and how to ensure the accuracy and safety of the medication preparation process.

Billing and inventory management: The lab component will provide training and practice in pharmacy billing and inventory management techniques. Students will learn how to manage medication inventories, order and receive medication shipments, and prepare and submit billing claims.

Medication safety and error prevention: The lab component will provide training and practice in medication safety and error prevention techniques. Students will learn how to identify and prevent medication errors, how to properly handle and store medications, and how to respond to medication emergencies.

Aseptic technique: The lab component will provide training and practice in aseptic technique, which is critical for ensuring the sterility and safety of medication preparations. Students will learn how to maintain a sterile environment, how to properly handle and dispose of sterile equipment, and how to prepare sterile medications.

From the COR list, what activities are specified as lab, and how will those be monitored by the instructor?

All of the activities listed are specified as lab activities, as they involve hands-on training and practice in technical skills related to pharmacy operations and medication management. The instructor will monitor these activities in several ways:

Direct observation: The instructor will observe students as they perform the various lab activities, providing guidance and feedback as necessary.

Checklists: The instructor may provide checklists or rubrics that outline the steps involved in each lab activity and the criteria for successful completion. This can help students stay organized and focused during the lab activities and can provide a clear framework for assessment.

Record-keeping: The instructor may keep records of each student's progress and performance during the lab activities, including notes on their technique, accuracy, and safety practices.

Assessments: The instructor may administer quizzes or tests that assess students' understanding of the lab activities and their ability to perform them accurately and safely.

How will you assess the online delivery of lab activities?

To assess the online delivery of lab activities, the professor would use a variety of methods to ensure that students are gaining the necessary skills and competencies. eScience's PowerPoint presentations and lesson quizzes would be used to assess students' understanding of sterile and aseptic techniques. YouTube videos would also be posted to supplement the online learning experience.

For the hands-on lab component, the professor would assess students' skills and competencies through synchronous and asynchronous Zoom meetings, as well as proctored quizzes. Students would be provided with a lab kit to use during their hands-on lab sessions and ensure that they have the necessary equipment and materials to complete the activities.

In addition, periodic online Zoom meetings with students would be scheduled to discuss their progress, provide feedback, and answer any questions they may have. Virtual office hours would also be offered, and students would be encouraged to reach out to the professor with any concerns or questions they may have.

To ensure that students are meeting the course objectives and achieving the necessary competencies, the professor would continuously monitor their progress and provide timely feedback. Remediation or tutoring would also be offered to any students who may need additional support to improve their performance.

Overall, a combination of online quizzes, Zoom meetings, lab kits, and virtual office hours would be used to assess the online delivery of lab activities and ensure that students are gaining the necessary skills and competencies to become competent pharmacy technicians.

Instructional Materials and Resources

If you use any other technologies in addition to the college LMS, what other technologies will you use and how are you ensuring student data security?

If any other technologies were to be used in addition to the college LMS, the professor would ensure that they comply with data security policies and regulations. The professor would use only secure and reliable technologies that are appropriate for educational purposes. To ensure student data security, the professor would follow best practices for securing online learning environments, including implementing strong passwords, using multi-factor authentication, encrypting data in transit and at rest, and monitoring access logs for suspicious activity. The professor would also educate students on data security best practices and provide guidance on how to protect their personal information.

Overall, the professor would take all necessary precautions to ensure that student data is secure and protected when using any additional technologies beyond the college LMS.

If used, explain how specific materials and resources outside the LMS will be used to enhance student learning.

Some of the specific materials and resources that could be used include websites, videos, and articles related to pharmacy law, regulations, and best practices. These external resources could be linked to within the LMS or provided as handouts for students to access.

External websites could be used to provide students with access to the latest information and developments in the field of pharmacy. Videos could be used to demonstrate techniques and procedures for sterile and non-sterile compounding, as well as other hands-on lab activities. Articles could be used to provide students with in-depth knowledge and understanding of pharmacy law and regulations, as well as pharmacology and medication classifications.

Effective Student/Faculty Contact

Which of the following methods of regular, timely, and effective student/faculty contact will be used in this course?

Within Course Management System:

Discussion forums with substantive instructor participation
Online quizzes and examinations
Private messages
Regular virtual office hours
Timely feedback and return of student work as specified in the syllabus
Video or audio feedback
Weekly announcements

External to Course Management System:

Direct e-mail
Posted audio/video (including YouTube, 3cmediasolutions, etc.)

For hybrid courses:

Scheduled Face-to-Face group or individual meetings

Briefly discuss how the selected strategies above will be used to maintain Regular Effective Contact in the course.

The professor will ensure that students have regular opportunities to interact with course content, other students, and the professor to promote engagement and learning.

Online didactic instruction, including narrated lectures, discussion boards, and chapter quizzes, will provide students with regular opportunities to interact with course content and demonstrate their understanding of key concepts.

Hands-on lab activities, including f2f lab sessions and synchronous online meetings, will provide students with opportunities to apply what they have learned and practice their skills under the guidance of the professor.

Proctored quizzes, mid-term and final examinations, and student presentations will allow students to demonstrate their knowledge and understanding of the course material, and provide opportunities for the professor to provide feedback and support.

Periodic Zoom meetings and virtual office hours will provide opportunities for students to ask questions, receive feedback, and engage in discussions with the professor and other students.

Overall, the combination of these strategies will ensure that students have regular opportunities to interact with course content, engage in active learning, and receive feedback and support from the professor. By maintaining Regular Effective Contact, the professor will promote student success and help students achieve the course objectives.

If interacting with students outside the LMS, explain how additional interactions with students outside the LMS will enhance student learning.

Interacting with students outside the LMS, such as through email, text, telephone, Zoom meetings, or f2f meetings, can enhance student learning by providing additional opportunities for students to receive individualized feedback and support from the professor.

These additional interactions can provide a more personalized learning experience, where students can ask questions, receive clarification, and discuss course content with the professor in a one-on-one or small group setting. This can help students to better understand difficult concepts and apply what they have learned to real-world scenarios.

Outside interactions can also provide opportunities for the professor to provide guidance and support to students who may be struggling with the course material or need additional help.

Other Information

MIS Course Data

CIP Code
51.0805 - Pharmacy Technician/Assistant.

TOP Code
122100 - Pharmacy Technology

SAM Code
C - Clearly Occupational

Basic Skills Status
Not Basic Skills

Prior College Level
Not applicable

Cooperative Work Experience
Not a Coop Course

Course Classification Status
Credit Course

Approved Special Class
Not special class

Noncredit Category
Not Applicable, Credit Course

Funding Agency Category
Not Applicable

Program Status
Program Applicable

Transfer Status
Not transferable

General Education Status
Y = Not applicable

Support Course Status
N = Course is not a support course

Allow Audit
No

Repeatability
No

Materials Fee
No

Additional Fees?
No

Files Uploaded

Attach relevant documents (example: Advisory Committee or Department Minutes)
Pharmacy_Technicians_2.pdf
Pharmacy Tech Announcement of Intent.docx
Pharmacy Technician Certificate Narrative.doc

Approvals

Curriculum Committee Approval Date
10/04/2022

Academic Senate Approval Date
10/13/2022

Board of Trustees Approval Date
11/10/2022

Chancellor's Office Approval Date
11/10/2022

Course Control Number
CCC000607686

Programs referencing this course
Pharmacy Technician Certificate of Achievement (http://catalog.collegeofthedesert.eduundefined/?key=236)