



**2017-2018**

# ***Pharmacology for Health Care Professions***

**COURSE OUTLINE**

## **DESCRIPTION:**

This course provides a foundation for the use of medications across multiple health care professions. It focuses on a general understanding of the actions and use of various groups of pharmacologic agents. Included in the course is an overview of medications, the effect on different organ systems and the disease process, therapeutic effects, drug calculations, anatomy and physiology, and medical terminology. The course is designed to prepare students to further their education in multiple health care fields.

***Pharmacology for Health Care Professionals has been UC a-g approved to meet the elective (“g” – Interdisciplinary) requirement.***

## **INFORMATION:**

- A. Pre-requisite: Medical terminology (Recommended)
- B. Course Length: One semester
- C. Sector: Health Science & Medical Technology
- D. Pathway: Patient Care

<b>O*Net SOC Codes</b>	
<b>Code #</b>	<b>Title</b>
29.2052.00	Pharmacy Technicians
29.2061.00	Licensed Practical and Licensed Vocational Nurse
31.1011.00	Home Health Aids
31.9092.00	Medical Assistants
31.9099.00	Health Care Support Workers, All Other

<b>Orientation</b>
<ul style="list-style-type: none"><li>A. Introduce the course and facilities.</li><li>B. Discuss the syllabus and major objectives.</li><li>C. Explain applicable classroom management procedures, the ROP Student Rules of Conduct, and any operational guidelines.</li><li>D. Review instructor/student expectations.</li><li>E. Explain enrollment and attendance requirements and procedures.</li><li>F. Review grading and student evaluation procedures.</li><li>G. Discuss the community classroom aspect of the program if applicable.</li><li>H. Discuss the “next steps” related to additional education, training, and employment.</li><li>I. Review classroom safety, emergency and disaster procedures.</li></ul>
<b>1. Communication Skills</b>
<ul style="list-style-type: none"><li>A. Demonstrate positive verbal communication skills using appropriate vocabulary, demeanor, and vocal tone in the classroom and/or worksite.</li><li>B. Read and interpret written information and directions.</li><li>C. Practice various forms of written communication appropriate to the occupation.</li><li>D. Practice positive body language skills.</li><li>E. Practice professional verbal skills for resolving a conflict.</li><li>F. Demonstrate active listening skills including techniques for checking for understanding, and for obtaining clarification of directions.</li></ul>
<b>2. Interpersonal Skills</b>
<ul style="list-style-type: none"><li>A. Demonstrate positive teamwork skills by contributing to a group effort.</li><li>B. Practice the importance of diversity awareness and sensitivity in the workplace.</li><li>C. Define sexual harassment in the workplace and identify the employee’s role and responsibility.</li><li>D. Practice participation skills.</li><li>E. Identify different personality types and strategies for working effectively with each type.</li><li>F. Practice business and social etiquette skills appropriate to the occupation.</li><li>G. Discuss the role of business and personal ethics in the decision-making process.</li><li>H. Evaluate various job-related scenarios and justify decisions based on ethics.</li><li>I. Demonstrate flexibility and adaptability in working with others.</li><li>J. Demonstrate the use of time management skills.</li></ul>

<b>3. Personal and Occupational Safety</b>
<ul style="list-style-type: none"><li>A. Demonstrate procedures to be followed in the case of emergencies.</li><li>B. Discuss ways to report a potential safety hazard to a supervisor.</li><li>C. Identify and discuss cyber ethics, cyber safety, and cyber security.</li><li>D. Apply personal safety practices to and from the job.</li><li>E. Demonstrate understanding of the procedure for reporting a work-related hazard or injury.</li><li>F. Recognize the effects of substance abuse in the workplace.</li></ul>
<b>4. Leadership</b>
<ul style="list-style-type: none"><li>A. Define leadership and identify the responsibilities, competencies, and behaviors of successful leaders.</li><li>B. Work with peers to promote divergent and creative perspectives.</li><li>C. Demonstrate how to organize and structure work, individually and in teams, for effective performance and the attainment of goals.</li><li>D. Explain multiple approaches to conflict resolution and their appropriateness for a variety of situations in the workplace.</li><li>E. Employ ethical behaviors and actions that positively influence others.</li><li>F. Use a variety of means to positively impact the direction and actions of a team or organization.</li><li>G. Analyze the short-term and long-term effects a leader's actions and attitudes can have on productivity, morale, and organizational culture.</li></ul>
<b>5. Introduction to Pharmacology</b>
<ul style="list-style-type: none"><li>A. Identify common routes of administration.</li><li>B. Describe various delivery methods of medications.</li><li>C. Explain the difference between chemical, generic, and brand names.</li><li>D. Demonstrate research techniques for obtaining drug information from established drug references sources.</li><li>E. Define an adverse drug reaction and list examples.</li><li>F. Define common terms related to pharmaceuticals.</li><li>G. Describe the components of the drug cycle, absorption, distribution, metabolism, and excretion.</li><li>H. Explain the benefits, advantages, and disadvantages of different routes of administration.</li><li>I. Describe the advantages and disadvantages of common dosage forms.</li><li>J. List common sources of medications.</li><li>K. Explain the approval process for new medications.</li><li>L. Identify factors that influence the effects of medications.</li><li>M. Describe medication concerns for special populations. (i.e. Pediatrics, Elderly, Obese, Pregnant.)</li><li>N. Explain strategies for maximizing therapeutic effects of drug therapy and minimizing adverse effects in drug therapy</li><li>O. Define poly-pharmacy and its relevance in managing drug therapy in older adults.</li></ul>

<b>6. Medications</b>
<ul style="list-style-type: none"><li>A. Identify common over the counter medications and their uses.</li><li>B. Identify common medication by brand and generic name.</li><li>C. List commonly used controlled medications and their schedule.</li><li>D. Differentiate between major classifications of medications.</li><li>E. List common uses, side effects, and interactions of medications</li><li>F. Compare and contrast traditional medications and alternative therapies.</li></ul>
<b>7. Anatomy and Physiology</b>
<ul style="list-style-type: none"><li>A. List the major body systems and give general functions of each: Integumentary, Muscular, Skeletal, Nervous (Including senses), Cardiovascular, Endocrine, Lymphatic, Immune, Respiratory, Gastrointestinal, Urinary, and Reproductive.</li><li>B. Describe common diseases and conditions that affect each body system, including pathophysiology, signs, symptoms, and treatment options.</li><li>C. Define common medical terms related to each body system.</li><li>D. Describe the location of the major structures of each body system.</li><li>E. Explain the actions of medications on various body systems.</li></ul>
<b>8. Dispensing Medications</b>
<ul style="list-style-type: none"><li>A. Identify the key elements of a prescription.</li><li>B. Interpret labels found on medication containers.</li><li>C. Decipher commonly used abbreviations, codes, and symbols used on prescriptions.</li><li>D. Correctly transcribe prescriptions and medication orders.</li><li>E. Describe the role of health care professionals in preventing medication errors.</li><li>F. Identify storage and handling requirements for medications.</li><li>G. Explain methods to help educate patients within various health care professions scope of practice.</li><li>H. Demonstrate proper dispensing procedures for various types of medications.</li><li>I. Accurately measure liquid medications oral and parenteral.</li><li>J. Describe methods to monitor the outcomes of drug therapy.</li></ul>
<b>9. Dosage Calculations</b>
<ul style="list-style-type: none"><li>A. Identify the measurement terms used in apothecary, metric, and household systems.</li><li>B. Convert between metric, apothecary and household systems.</li><li>C. Utilize mathematical skills to solve dosage calculations accurately.</li></ul>

- D. Accurately add, subtract, multiply, and divide whole numbers, decimals, and fractions.
- E. Convert between decimals, percentage, fractions, and ratios.
- F. Convert between Fahrenheit to Celsius
- G. Determine safe dosages for infants and children.
- H. Convert between Roman and Arabic numerals.
- I. Convert between standard and international/military time.
- J. Calculate amount to administer according to dose.
- K. Calculate the amount needed to fill a prescription or medication order.
- L. Calculate the days' supply of a medication order.

## 10. Law and Ethics

- A. Describe the schedules for controlled medications.
- B. Describe the implications of the Health Insurance Portability and Accountability Act (HIPAA) and its impact on the health care system.
- C. Describe the purpose of state and federal regulatory agencies related to healthcare.
- D. Explain the need for medical code of ethics.
- E. Identify common laws and regulations that affect healthcare.

## 11. Career Exploration

- A. Describe the role pharmacology plays in various health care professions.
- B. Identify the purpose of various health care facilities.
- C. Describe the training and educational requirements for various health care professions.

## Key Assignments

Assignment	Competencies	Career Ready Practices	Anchor Standards	Pathway Standards	CCSS
1. Students will present information on popular medications (non-controlled substances). Presentations will include information on indications, contra indications, dosage forms, dosage strengths, side effects, and other pertinent information. Presentation will include information learned in Units 6 and 7 of the course outline.	1A-D 2A, D 5A-F, H-J, L-N 6A-F	1 2 11	2 4	B 3.0 B 5.0	LS 11-12.6 RLST 11-12.4
2. Students will work in groups to develop a game or activity that teaches fellow students the basics of a body system using proper medical terminology.	1A, B, D, E 2A, D 7A-D	1 2 9 10	2	B 5.0	LS 11-12.6 RLST 11-12.4
3. Students will correctly transcribe and prepare a minimum of 5 prescriptions with 100% accuracy; students will then document the use of the drug, common side effects or warnings, and any other pertinent information. The prescriptions will incorporate the use of translating abbreviations, dosage calculations, and drug knowledge.	1B, C 5A-F, H, M 6E 8A-D, H, I 9A-E, G, I-L	1 2 4	4 5	Patient Care B 3.0 B 5.0  Healthcare Administrative C 7.0	RLST 11-12.4 WHSST 11-12.2 WS 11-12.7  N-Q 1 N-Q 2
4. Students will research and electronically present information based on healthcare laws and regulations (past and present) that affect the use of medications. The presentation will include historical information and the need for medication regulation.	1A-D 2D 5K 10C-E	1 2 11	2 4 5 8	B 5.0	LS 11-12.6
5. Students will research, evaluate, and document a current example of a HIPAA violation.	1B, C 10B, D, E	1 2 5 11	2 4 5 8	Healthcare Administrative C 14.0	LS 11-12.6 WHSST 11-12.2 WS 11-12.7

## Standards Assessed in this Program

### Career Ready Practices

1. Apply appropriate technical skills and academic knowledge.
2. Communicate clearly, effectively, and with reason.
3. Develop an education and career plan aligned to personal goals.
4. Apply technology to enhance productivity.
5. Utilize critical thinking to make sense of problems and persevere in solving them.
6. Practice personal health and understand financial well-being.
7. Act as a responsible citizen in the workplace and the community.
8. Model integrity, ethical leadership, and effective management.
9. Work productively in teams while integrating cultural/global competence.
10. Demonstrate creativity and innovation.
11. Employ valid and reliable research strategies.
12. Understand the environmental, social, and economic impacts of decisions.

### Anchor Standards

#### 2.0 Communications

- Acquire and use accurately sector terminology and protocols at the career and college readiness level for communicating effectively in oral, written, and multimedia formats.

#### 3.0 Career Planning and Management

- Integrate multiple sources of career information from diverse formats to make informed career decisions, solve problems, and manage personal career plans.

#### 4.0 Technology

- Use existing and emerging technology, to investigate, research, and produce products and services, including new information, as required in the sector workplace environment.

#### 5.0 Problem Solving and Critical Thinking

- Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.

#### 6.0 Health and Safety

- Demonstrate health and safety procedures, regulations, and personal health practices and determine the meaning of symbols, key terms, and domain-specific words and phrases as related to the sector workplace environment.

#### 7.0 Responsibility and Flexibility

- Initiate, and participate in, a range of collaborations demonstrating behaviors that reflect personal and professional responsibility, flexibility, and respect in the sector workplace environment and community settings.

#### 8.0 Ethics and Legal Responsibilities

- Practice professional, ethical, and legal behavior, responding thoughtfully to diverse perspectives and resolving contradictions when possible, consistent with applicable laws, regulations, and organizational norms.

## 9.0 Leadership and Teamwork

- Work with peers to promote divergent and creative perspectives, effective leadership, group dynamics, team and individual decision making, benefits of workforce diversity, and conflict resolution.

## 10.0 Technical Knowledge and Skills

- Apply essential technical knowledge and skills common to all pathways in the sector following procedures when carrying out experiments or performing technical tasks.

## Pathway Standards

### Patient Care Pathway

**B 3.0:** Know how to apply mathematical computations used in health care delivery system.

**B 5.0:** Know the definition, spelling, pronunciation, and use of appropriate terminology in the health care setting.

### Health Care Administrative Services Pathway

**C 7.0:** Follow the model of medical safety practices and processes that can help prevent system medication errors and understand the consequences of mistakes.

**C 14.0:** Understand how to transfer information to third-parties.

## Common Core State Standards

### ENGLISH LANGUAGE ARTS

#### Language Standards

**LS 11-12.6:** Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the (career and college) readiness level, demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

#### Reading Standards for Literacy in Science and Technical Subjects

**RLST 11-12.4:** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics.

#### Speaking and Listening Standards

**SLS 11-12.2:** Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions, and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.

**SLS 11-12.1:** Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners, building on others ideas and expressing their own clearly and persuasively.

**SLS 11-12.1d:** Respond thoughtfully to diverse perspectives, synthesize comments, claims and evidence made on all sides of an issue, resolve contradictions when possible, and determine what additional information or research is required to deepen the investigation or complete the work.

## **Writing Standards**

**WS 11-12.6:** Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback including new arguments and information.

**WS 11-12.7:** Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem, narrow or broaden the inquiry when appropriate, synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

## **Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects**

**WHSST 11-12.2.** Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

## **MATHEMATICS**

### **Number and Quantity**

**N-Q 1:** Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

**N-Q 2:** Define appropriate quantities for the purpose of descriptive modeling.