

**The University of Texas at El Paso College of Nursing  
N2407 – Pharmacology for Nursing  
Summer 2023**

**COURSE DESCRIPTION/COURSE OVERVIEW:** This course provides an introduction to the principles of pharmacology, including pharmacokinetics, pharmacodynamics, pharmacotherapeutics, potential adverse medication reactions and interactions. Emphasis is placed on drug classifications and nursing implications related to the safe administration of medication to patients across the life span. Performing dosage calculations using varied methods are introduced.

**COURSE PRE-REQUISITES:** Admission into pre-requisites of nursing program classes. It is strongly recommended that students are also simultaneously enrolled in N2407 Pathophysiology.

**CREDIT ALLOCATION:** 4 credit hours (all didactic)

**FACULTY INFORMATION:**

- **Claudia Perez, MSN, RN**
- College of Nursing Building Office: 349
- Phone: (915) 747-7249
- Email: cleon2@utep.edu When the course starts – utilize the course messages within the Blackboard course.
- Office Hours: Wednesdays 0800- 1300 and 1400 - 1700. Contact me via the course messages at any time, but please allow for at least a 24 to 48-hour response time.

**REQUIRED RESOURCES:**

Workman, M.L. & LaCharity, L. (2016). Understanding pharmacology: Essentials for medication safety (2nd ed.). Elsevier. ISBN: 978-1-4557-3976-9.

ATI: Dosage Calculation and Pharmacology Made Easy Software (this is a resource provided by the College of Nursing).

**RECOMMENDED RESOURCES:**

Workman, M.L. & LaCharity, L. (2016). Study guide for understanding pharmacology: Essentials for medication safety (2<sup>nd</sup> ed.). Elsevier. ISBN: 978-0-3233-9494-9

Sienkiewicz, S. & Megerdichian, S. (2019). Clinical nursing calculations (2nd ed.). Jones & Bartlett. ISBN: 978-1-284-17025-2

**COURSE OBJECTIVES:**

Upon completion of this course, the learner should be able to:

1. Apply principles of pharmacology, pharmacokinetics, pharmacotherapeutics, and pharmacodynamics to medication therapy.
2. Recognize the major classifications of medications, common medications within each classification, their side effects, and contraindications.
3. Discuss nursing implications and concepts of safety, when performing drug calculations and medication administration.
4. Understand the legal and ethical implications/aspects of medication administration.

Linking of Course Objectives to Nursing Competencies:

<p>Crosswalk of:</p> <ul style="list-style-type: none"> <li>➤ UTEP CON PLOs</li> <li>➤ BSN Essentials (AACN)</li> <li>➤ DECs Based</li> <li>➤ UTEP EDGE Outcomes</li> </ul>	<p><i>UTEP CON PLOs (Level 1 Program Outcomes) &amp; QSEN Competencies</i> *: Patient-Centered Care*, Teamwork &amp; Collaboration*, Evidence-Based Practice*, Quality Improvement*, Safety*, Informatics*, Professionalism, Leadership, Communication, System Based Practice, Health Promotion and Education</p> <p><i>BSN Essentials (AACN):</i> 1, 2, 3, 4, 5, 6, 7, 8, 9</p> <p><i>Differentiated Essential Competencies (DECs) for Baccalaureate Degree (BSN)</i></p> <p>Member of the Profession A, B, C, D  Provider of Patient-Centered Care A, B, C, D, E, F, G, H  Patient Safety Advocate A, B, C, D  Member of the Health Care Team A, B, C, D</p> <p><i>UTEP EDGE Outcomes:</i> Leadership, Problem-Solving, Communication, Social Responsibility, Confidence, Global Awareness, Teamwork, Critical Thinking</p>
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**TEACHING METHODOLOGIES: Please see Blackboard for Course Calendar and Weekly Assignments**

Teaching will include any of the following:

- PowerPoint Presentations
- Interactive Class and Online Activities
- Lectures
- Class Discussions
- Case Studies
- Videos
- Quizzes
- Course Content Exams and a Comprehensive Final Exam

**GRADING POLICY AND STRUCTURE:**

Students must pass this course at a minimum of 75%. Per the College of Nursing policy, achieving less than 75% in the didactic portion of the course results in a course failure. **There is no rounding of grades and fractional points will be dropped upon final course grade. Extra credit is not permitted.**

**GRADING BREAKDOWN:**

Exam I	17%
Exam II	17%
Exam III	17%
Exam IV	17%
Final Exam	20%
Quizzes	12%
	100%

**GRADING SCALE:**

90-100	= A
80-89	= B
75-79	= C
60-74	= D
<60	= F

**COURSE POLICIES:****Academic Regulations**

- Review in UT El Paso Undergraduate Student Catalog and the College of Nursing Student Handbook the following policies: Religious Observance, Clinical Compliance, Ethical and Responsible Use of Social Media, Policy on Academic Integrity, Professional Attire and Uniform Guidance, Progression Policy, and Safe & Effective Nursing Practice Policy, Statement on Disability, Cell Phone Policy during Testing and Student Injury in Clinical Policy.

**Attendance**

- Students are expected to attend all classes and to arrive on time. Students arriving late are asked to enter quietly and unobtrusively. Students are responsible for content and/or announcements presented in class whether present or not.

**Blackboard**

- Students are required to subscribe to and **frequently access the course Blackboard site**. This site is the main source of communication between faculty and students. Students are encouraged to access this site on a daily basis. The course syllabus, calendar, assigned readings, and assignment criteria are also posted on this site. Grades will be made available **ONLY** through this site. Course communication during the semester will occur through the Blackboard course messages.

**Communication**

- Communication is the responsibility of both students and faculty. Faculty will keep students informed of progress and students will inform faculty of any deterrent to their success. Students with questions or concerns should:

*-First go to the appropriate faculty member.*

*-If not resolved, then follow the appropriate chain of command in the sequence as identified below:*

*Course manager*

*Director of Undergraduate Education*

*Associate Dean for Undergraduate Education*

*College of Nursing Dean*

**Grievances**

- Challenges to grades may be pursued only on the basis of malice, bias, arbitrary or capricious grade determination or impermissible discrimination. In no event shall a challenge be pursued only on the basis of the standards employed in setting grades, so long as those standards are employed impartially. Grievances **MUST** be in **WRITING**

and filed through the College of Nursing chain of command. If the student is not satisfied with the outcome after using the chain of command, the student may consult with and/or file a challenge with the Chairperson of the University Student Welfare and Grievance Committee.

### **Policy on Scholastic Dishonesty**

- Students are expected to be above reproach in all scholastic activities. Students who engage in scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and dismissal from the College of Nursing and/or university. Scholastic dishonesty includes but is not limited to reproducing test or quiz materials from memory, copy/paste or Xerox, cheating, plagiarism, collusion, the submission for credit or any work or materials that are attributable in whole or in part to another person, taking an examination for another person, and any act designed to give unfair advantage to a student or the attempt to commit such acts. Regents' Rules and Regulations, Part One, Chapter VI, Section 3, Subsection 3.2, Subdivision 3.22.
- Since scholastic dishonesty harms the individual, all students, and the integrity of the College of Nursing and the university, policies on scholastic dishonesty will be strictly enforced. See detailed procedure in the Handbook of Operating Procedures (HOP) available in the Office of the Dean of Students.

### **Policy relating to Disability / CASS / Pregnancy**

- **Disability:** It is the responsibility of the student to inform the course manager of any limitations they may have in completing course expectations. Nursing students with limitations are advised to discuss these matters with The Center for Accommodations and Support Services (CASS) to determine if reasonable accommodations could be provided. Written guidelines related to accommodations from CASS must be submitted to the course manager PRIOR to accommodations being provided. If you have a disability and need classroom accommodations, please contact CASS at 747-5148, or by email to [cass@utep.edu](mailto:cass@utep.edu), or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at [www.sa.utep.edu/cass](http://www.sa.utep.edu/cass). *CASS' Staff are the only individuals who can validate and if need be, authorize accommodations for students with disabilities.*
- **Pregnancy:** It is the responsibility of the student to inform the instructor of pregnancy limitations. Written guidelines r/t accommodations from The Center for Accommodations and Support Services (CASS) must be submitted to the course manager PRIOR to accommodations being provided.

### **Professional Behavior**

- Students are expected to behave professionally *at all times* with faculty and peers in any setting in which the student is a representative of UTEP. Bullying, verbal abuse, insubordination, or personal attacks will not be tolerated in any form. Any behavior deemed inappropriate by faculty will result in faculty conference(s), and completion of a SOS plan that addresses the student's areas of needed improvement. Possible activities

available to assist the student in attaining the SOS objectives include stress and/or anger management counseling sessions. Any behavior that is disruptive to the classroom may result in removal from the class and/or an administrative withdrawal from the course and/or dismissal from the program.

- The following addresses expectation of infection control, safety, and hygiene applying to classroom and clinical practice settings. Students are expected to be mindful of personal hygiene and cleanliness of clothing and personal baggage. Aseptic techniques should be used when coughing, sneezing, and disposing of personal tissues. Students and faculty must be careful to create an image of cleanliness and health, avoiding personal body odors and excessive use of perfumed chemicals. Hair should be clean and neatly kept, skin should be clean and intact. Open wounds with drainage/swelling/ or lacerations should be cleansed/bandaged for the classroom setting; however, a physician note is needed to be allowed into the skills practice lab or into a clinical rotation in the nursing program. *See Professional Attire and Uniform Guidance Policy.*

### **Retention: Students Opting for Success (SOS)**

- When a student is not progressing in the course as expected or is not successful on an examination, they are required to meet with the instructor as soon as possible to discuss strategies for success. It is the student's responsibility to complete the SOS form and meet with the faculty to discuss. The SOS will identify recommendations for improving the student's success potential and will specify timelines for completion of these recommendations. SOS will be due a week prior to the next exam. *Non-compliance with SOS recommendations jeopardizes eligibility to repeat the course in the subsequent semester.*

### **UTEP Tobacco Policy**

- The University of Texas at El Paso (UTEP) appreciates your cooperation as we are a smoke and tobacco-free campus. The policy is part of the university's promotion of respect toward our environment and community. The use of tobacco products (including but not limited to cigarettes, cigars, pipes, water pipes, bidis, kreteks, electronic cigarettes, smokeless tobacco, snuff, chewing tobacco or all other tobacco products) is prohibited in university buildings, grounds, sidewalks, walkways, and university-owned property and applies to all students, faculty, staff, contractors, and visitors. For more information, visit: [www.tobaccofree.utep.edu](http://www.tobaccofree.utep.edu).

### **Laptops**

Use of laptops during class is permitted. If you do use a laptop during class:

- Set your laptop volume control to mute or off before coming to class.
- Do not engage in unauthorized communication or entertainment (web surfing, instant messaging, chat room chatting, DVD viewing, music playing, game playing, etc.) during class unless it is part of the lesson. Such unauthorized use will result in student removal from class that day and possible loss of laptop use for the entire class.

### **Cell Phones**

- Set your phone to mute or silent mode before coming to class.
- Cell phones will not be allowed for any use in class (no phone calls, texts, web browsing). Any student with a visible phone in possession during class times will be asked to leave the class and will receive an unexcused absence for that day with all quizzes and/or assignments for that day recorded as a zero.

### Audio Recording

- Audio recording of any class information is at the discretion of the faculty. No videotaping is permitted.

### Student Responsibility.

- Students are responsible for all assigned reading and lecture content. Preparation for class and participation in class will optimize the student's ability to succeed in the course. **Students should read assigned materials prior to the lecture in order to be prepared for each class.**

### Quizzes

- Quizzes may be given at the start of class, during class or at the end of class. Although some quizzes are announced on the course calendar, the majority of the quizzes will be given throughout the semester unannounced during scheduled class time. **THERE IS NO MAKE-UP FOR QUIZZES FOR ANY REASON.**
- If a quiz or exam is missed, student will not be allowed to attend another course section to make-up that grade. Due to the limited number of seats in each classroom, students must attend assigned class for which he/she registered unless prior arrangements were made and confirmed with the course manager.
- The lowest quiz grade will be dropped at the end of the semester with the exception of the dosage calculation quiz as long as the student has participated in class with their audience response card throughout the semester. Students who choose not to participate in class with their audience response card will **NOT** have a quiz dropped from their final quiz average.
- Students may review each quiz up to the date/time specified by the course manager through the course announcements. No multiple reviews a quiz are allowed.
- The Dosage Calculation quiz must be passed with a minimum score of a 90 (College of Nursing Policy). If the quiz is not passed, remediation will be required prior to the deadline identified by faculty. **Failure to complete this remediation will result in an "incomplete" for the course.**

### Examinations

- Examinations are scheduled during the semester and a comprehensive final exam is scheduled at the end of the semester. The questions are derived from lecture objectives and course content presented during lecture as well as reading assignments from the required resources for the course.
- All students are expected to take the examinations at the scheduled time. Make-up exams are rarely given and then **ONLY** when there is a very valid reason (with appropriate documentation) and the course manager has been contacted **PRIOR** to class time. Failure to do so will result in receiving a zero (0) for the exam. Make-up exams will be different than exams given in class to include fill in the blank and essay questions.
- All cell phones must be turned off during exams and left at the front of the classroom. Items at individual desks are limited to pencils and basic calculators. Calculators that can store information are not allowed. Hats and/or smart devices are not permitted during exams or quizzes. **No one may leave the room during an exam. Any violations will be referred to the Office of Student Conduct and Conflict Resolution (OSCCR) for scholastic dishonesty.**
  - All cell phones are required **to be turned off** and placed in the student's book bag, purse, etc. **Simply placing the phone on vibrate mode is not acceptable.** If a cell phone, watch, or electronic device placed in the student's book bag, purse, etc.

rings/alarms/vibrates during an exam, the faculty member will permit the student to complete the exam and will refer the student to Office of Student Conduct and Conflict Resolution (OSCCR) for violating policy. The following actions will be reported to the OSCCR for implementation: First infraction will have a 10-point deduction for the exam grade, the second infraction **will result in an exam grade of "0"**.

- Content exams and the Final Exam are timed. Students will be allowed to write on the exams, but it is only the answers on the scantron that will be scored for the examination grade. Failure to fill in appropriate information on the scantron will result in zero credit for the exam responses. No extra time will be given to complete the scantron once the timed period is over.
- Student copies of the exams will not be allowed outside of the classroom at any time. Test items are the property of the faculty, and thus the university; writing down specific test items or answers is NOT permitted.
- Students may review the exam key (exams 1-4) with their exam the following week. Specific times will be determined by the course manager. Exam reviews must be done in one sitting. No multiple reviews of one exam are allowed. **Each exam may be reviewed only up until the date/time specified by the course manager prior to the next exam. The final exam will only be available for a limited review.**

### COVID-19 PRECAUTIONS STATEMENT

- Please stay home if you have been diagnosed with COVID-19 or are experiencing COVID-19 symptoms. If you are feeling unwell, please let me know as soon as possible, so that we can work on appropriate accommodations. If you have tested positive for COVID-19, report your results to [covidaction@utep.edu](mailto:covidaction@utep.edu). The Student Health Center is equipped to provide COVID-19 testing.
- The Center for Disease Control and Prevention recommends that people in areas of substantial or high COVID-19 transmission wear face masks when indoors in groups of people. The best way that Miners can take care of Miners is to get the vaccine. For more information about the current rates, testing, and vaccinations, please visit [epstrong.org](http://epstrong.org).

### STUDENT RESOURCES:

**MaRCS Center: (Math Resources Center for Students).** The MaRCS tutoring center provides walk-in, face-to-face tutoring for all undergraduate mathematics courses. This is a free service for all UTEP students. Located in the library, room 218 (747-5366) or at <https://www.utep.edu/science/math/marcs/>

**Student Health Center:** UTEP Student Health Center is here to meet the health care needs of all students so they can focus on their studies. As a student you have paid a medical service fee that allows you to be seen at the clinic as often as needed. Office visits are low cost as well as medications, supplies and any needed lab tests (747-5624). <https://www.utep.edu/chs/shc/>

**University Counseling Center:** The UTEP University Counseling Center located at 202 Union West can assist you to decide on a career or work through personal concerns. They provide confidential counseling services, assist with stress management, and offer an after-hours crisis support line (747-5302). <https://www.utep.edu/student-affairs/counsel/>

## Topical Outline

### General Aspects of Pharmacology

- Drug Regulation, Actions, and Responses
  - Pharmacodynamics
  - Pharmacokinetics
  - Life Span Considerations
- Safely Preparing and Giving Drugs
  - Eight Rights of Safe Drug Administration
  - Types and Interpretation of Drug Orders
  - Preventing Drug Errors
  - Principles of Administering Drugs: Enteral, Parenteral, and Percutaneous

### Mathematics in Pharmacology and Dosage Calculation

- Mathematics Review and Introduction to Methods of Dosage Calculation
- Medical Systems of Weights and Measures
- Dosage Calculation and Intravenous Solutions and Drugs
- Medication Orders and Interpretation of Medication Labels
- Dosage Calculation for Enteral Medications, Parenteral Medications, Infusion Therapy, and Special Populations

### Anti-Inflammatory Drugs

- General overview of inflammation
- Corticosteroids
- Nonsteroidal anti-inflammatory drugs
- Antihistamines and Leukotriene inhibitors
- Disease-Modifying antirheumatic drugs

### Drugs for Pain Control

- General issues related to analgesic drug therapy
- Opioids
- Nonopioid pain-control drugs
  - Acetaminophen
  - Nonsteroidal anti-inflammatory drugs
  - Antidepressants
  - Anticonvulsants
  - Muscle relaxants

### Anti-Infectives: Antibacterial Drugs

- General issues related to antibacterial therapy
- Antibacterial drug resistance
- Cell wall synthesis inhibitors
- Protein synthesis inhibitors
- Metabolism inhibitors
- DNA synthesis inhibitors

### Anti-Infectives: Antiviral drugs

- General issues in antiviral and antiretroviral therapy
- Antiviral drugs
- Antiretroviral drugs



**Anti-Infectives: Antitubercular and Antifungal Drugs**

- General overview of tuberculosis and fungal infections
- First-line antitubercular drugs
- Drugs for superficial and systemic fungal infections

**Anticancer Drugs**

- General issues related to cancer treatment
- Chemotherapy
- Hormone Manipulation
- Targeted therapy
- Biological response modifiers

**Drug Therapy for Diabetes**

- General overview of diabetes
- Insulin therapy/Noninsulin antidiabetic drugs

**Drug Therapy for Thyroid and Adrenal Gland Problems**

- General overview of hypothyroidism and hyperthyroidism
- Types of thyroid hormone replacement drugs
- Types of thyroid-suppressing drugs
- Types of drugs for adrenal gland malfunction

**Drugs that Affect Urine Output**

- General issues related to diuretic therapy and overactive bladder
- Diuretics: Thiazide, Loop, and Potassium-Sparing
- Types of drugs for overactive bladder

**Drug Therapy for Hypertension**

- General issues for antihypertensive therapy
- Types of antihypertensive drugs
  - Diuretics
  - Angiotensin-converting enzyme (ACE) inhibitors
  - Angiotensin II receptor blockers (ARBs)
  - Calcium channel blockers
  - Beta blockers
  - Alpha blockers
  - Alpha-beta blockers
  - Central-acting adrenergic agents
  - Direct vasodilators

**Drug Therapy for Heart Failure**

- General issues in heart failure therapy
- Types of drugs used to treat heart failure
  - Antihypertensive drugs
  - Vasodilators
  - Cardiac glycosides
  - Human B-type natriuretic peptides
  - Positive inotropes
  - Other drugs used to treat heart failure

**Drug Therapy for High Blood Lipids**

- General issues for antihyperlipidemic therapy
- Types of Lipid-lowering drugs
  - Statins
  - Bile acid sequestrants
  - Cholesterol absorption inhibitors
  - Fibrates
  - Nicotinic acid agents

**Drugs that Affect Blood Clotting**

- General issues for anticoagulant therapy
- Types of drugs that affect blood clotting
  - Thrombin inhibitors
  - Clotting factor synthesis inhibitors
  - Antiplatelet drugs
  - Thrombolytic drugs
  - Colony- stimulating factors

**Drug Therapy for Asthma and Other Respiratory Problems**

- General overview of asthma and COPD
- Types of drugs for asthma and COPD
  - Bronchodilators
  - Anti-inflammatory drugs
  - Combination bronchodilator and anti-inflammatory drugs
  - Mucolytics

**Drug Therapy for Gastrointestinal Problems**

- General overview of nausea and vomiting
- Antiemetic drugs
- General overview of constipation and diarrhea
- Types of drugs for constipation and diarrhea

**Drug Therapy for Gastric Ulcers and Reflux**

- General issues for drugs for PUD and GERD
- Types of drugs for PUD and GERD
  - Histamine H2 blockers
  - Proton pump inhibitors
  - Antacids
  - Cytoprotective drugs
  - Promotility drugs

**Drug Therapy with Nutritional Supplements**

- General overview of vitamins and supplements
- Enteral nutritional supplements

**Drug Therapy for Seizures**

- General overview of seizures and drug related issues
- Types of antiseizure drugs

**Drug Therapy for Alzheimer's and Parkinson's Diseases**

- General overview of Alzheimer's and Parkinson's disease
- Types of drugs for Alzheimer's disease
  - Cholinesterase/Acetylcholinesterase inhibitors and Memantine
- Types of drugs for Parkinson's disease
  - Dopaminergic/Dopamine agonists, COMT inhibitors, MAO-B inhibitors, and Anticholinergics

**Drug Therapy for Psychiatric Problems**

- General issues related to drug therapy for psychiatric problems
- Types of drugs for depression
- Type of drugs for anxiety
- Types of drugs for psychosis

**Drug Therapy for Insomnia**

- General overview of insomnia
- Drugs for insomnia

**Drug Therapy for Eye Problems**

- General issues for optic drug therapy and otic therapy
- Types of drugs for glaucoma
  - Prostaglandin agonists
  - Beta-adrenergic blocking agents
  - Alpha-adrenergic agonists
  - Cholinergic drugs
  - Carbonic anhydrase inhibitors

**Drug Therapy for Osteoporosis, Arthritis, and Skeletal Muscle Relaxation**

- General overview of osteoporosis, arthritis, and muscle spasms
- Types of drugs to manage or slow osteoporosis
- Types of drugs to manage arthritis
- Skeletal muscle relaxants

**Drug Therapy for Male Reproductive Problems**

- General overview of benign prostatic hyperplasia
- Types of drugs for benign prostatic hyperplasia
  - DHT inhibitors and Selective alpha-1 blockers
- Male hormone replacement therapy

**Drug Therapy for Female Reproductive Issues**

- General overview of menopause
- Types of perimenopausal hormone replacement drugs

**See separate course calendar for specific dates for reading assignments and exams.**