



Department of Kinesiology
ATR 420: Pharmacology

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PLNU Mission

To Teach ~ To Shape ~ To Send

Point Loma Nazarene University exists to provide higher education in a vital Christian community where minds are engaged and challenged, character is modeled and formed, and service becomes an expression of faith. Being of Wesleyan heritage, we aspire to be a learning community where grace is foundational, truth is pursued, and holiness is a way of life.

COURSE DESCRIPTION AND AIM

This course will provide an overview of drug classifications and medical-legal aspects of therapeutic and pharmacological treatments.

This course provides an in-depth study and eventual mastery of the knowledge and skills you will need as a health professional to utilize the appropriate OTC and prescription medication to treat pain, inflammation and other illnesses and disorders. Students will gain a working knowledge of pharmacological principles in athletic training:

- | | |
|---|--|
| <ul style="list-style-type: none">• OTC's• Indication/contraindication• Side effects of drugs | <ul style="list-style-type: none">• Prescription drugs• Pharmacology of drugs |
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In the process, you will develop an emerging mastery of the *Educational Competencies* of the NATA's Educational Council (See Appendix D for details on these

Competencies in preparation for the Board of Certification Examination for Athletic Trainers)

To be successful in this course, students must synthesize information presented in the lecture and laboratory and apply it to the clinical setting. Specifically, this means that studying for quizzes and tests should involve reviewing and integrating the essential ideas contained in both the lectures and the textbook. Where possible, we will do activities in class or have study sessions to improve your retention. Graded assignments (e.g., tests, quizzes, assessment outlines and review of literature paper) will be used to help students identify, recall, synthesize and apply the key concepts in therapeutic modalities and pharmacology.

STUDENT LEARNING OUTCOMES

Upon completing this course, you will be able to:

- Describe and understand the indications, contraindications, precautions, and adverse reactions of medications commonly used to treat athletes.
- Explain the general therapeutic strategy, including drug categories used for treatment, desired treatment outcomes, and typical duration of treatment for various diseases and conditions.
- Identify the common methods used to administer medication and their advantages and disadvantages.
- Explain the concepts related to bioavailability, half-life, and bioequivalence (including the relationship between generic and brand name drugs) and their relevance to the patient, the choice of medication, and the dosing schedule.
- Review and adhere to a policies-and-procedures manual as it relates to medications.
- Understand the laws, regulations, and procedures that govern storage, transportation, dispensation, and recording prescription and nonprescription medications.
- Recognize the signs of drug abuse/dependency and explain the proper approach to intervention and referral

CREDIT HOUR INFORMATION

In the interest of providing sufficient time to accomplish the stated Course Learning Outcomes, this class meets the PLNU credit hour policy for a 1 unit class delivered over 5 weeks.

Example

It is anticipated that students will spend a minimum of 37.5 participation hours per credit hour on their course work. The time expectations for this course are shown below:

Assignments	Total Hrs
Reading & Videos	12
Online Participation in forums, groups, etc	8
Web assignments	5
Journals	2
Group Projects	6.5
Exams & Quizzes	4
Total	37.5

REQUIRED TEXTS AND RECOMMENDED RESOURCES

Textbook:

	Title	Therapeutic Medications for Athletic Trainers (2nd edition)
	Author	Micheal Koester
	ISBN	978-0-7360-6877-2
	Publisher	Human Kinetics
	Publication Date	August 3, 2007

Websites:

- Center for Disease Control: [www.cdc.gov]
- Drug Free Sport [www.drugfreesport.com]
- Food and Drug Administration:[www.fda.gov]
- MEDLINEplus website:[<http://medlineplus.gov>]

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ASSESSMENT AND GRADING

Your grades will be posted in the Canvas gradebook no later than midnight on Tuesday of each week beginning in Week Two of this course. It is important to read the feedback provided in the gradebook as these comments are intended to help you improve your work. Final grades will be posted within ten days of the end of the class. Multiple measures of evaluation are used in the course, allowing students opportunities to demonstrate their learning in more than one way, and giving consideration to individual learning styles. Course components that will be evaluated include:

Discussion Boards:

Students will participate in online discussions with classmates to expand upon the topics raised during the week from the videos and readings. You will have the opportunity, via the Discussion Boards, to interact with your fellow students and with me and to discuss topics of interest to you. You are invited to become engaged with others in this class as you debate issues raised in the questions, examine and analyze case studies related to the content, and respond to the comments of your classmates.

For each Discussion Board topic, you will be required to post one response of your own and to post one reply to a classmate's response. Thus, you must respond at least **twice** to each Discussion Board topic on canvas. Your response to a classmate's post may include one or more of the following:

- Ask a probing question
- Share an insight from having read your classmate's post
- Offer and provide evidence to support an opinion
- Validate a classmate's idea with reference to your own experiences
- Make a suggestion for improvement
- Expand on your classmate's post.

To **receive full credit for your participation**, your posts **MUST** also be **MADE IN A TIMELY WAY**. Specifically, this means that you must post a response during the week after we first encounter a new chapter or topic. **Discussions represent 30% of the overall course grade.**

Web Assignments:

Each week you will be given specific organization to look up on the web with scenarios included that you will complete. **Web assignments represent 12% of the overall course grade.**

NATA Position Statement Discussion Questions:

You will be assigned four NATA position statements to read and complete discussion questions related to each article. **Discussion questions will represent of the overall grade**

Journal Article Review:

You will be asked to find an article on specific topics. The article will contain important findings or conclusions relative to current topics discussed in lecture. The reviews should be 1-2 pages in length (double spaced, 12 pt. font, Times New Roman or equivalent). Journal article reviews should include the following information:

<ul style="list-style-type: none">• Purpose• Hypothesis• Purpose• Methods• Results• Conclusions	<ul style="list-style-type: none">• what were the significant findings and implications• Strengths and weakness of the article• Would you recommend this article
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Journals represent 9% of overall course grade

Pharmacology project:

With a partner you will be assigned specific over-the-counter medications (OTC). You will compare and contrast brand name and store name medications for each drug. A detailed guideline will be provided. **Pharmacology project represents 8% of overall course grade.**

Group Project - Service Announcement:

Students will be assigned to groups and given a specific prescription or over-the-counter analgesic medication. After reading the article by the FDA "A guide to safe use of pain medication", students will create a service announcement video on safety guidelines for their particular medication. **The video should include:** How that medication works as an analgesic; dosage; Indications/contraindications, active ingredients and misuse/abuse of drug. **Resources:** Smart Phone App - Epocrates, Website - www.fda.gov. **Submission of assignment:** Video needs to be uploaded onto youtube and the link sent to the professor. **Group project represents 8% of overall course grade.**

Quizzes

The quizzes will be designed to test the students' comprehension of the material presented via lectures and independent studying of the textbook. Questions will include: multiple choice, fill in the blank, matching, true/false, short answer, and essay formats. **Quizzes represent 18% of overall course grade.**

Final Exam

The final exam will be cumulative and summative. Information from the entire semester will be tested. **Final exam represents 15% of overall course grade.**

Grading Scale

A	93-100	C	73-76
A-	92-90	C-	70-72
B+	87-89	D+	67-69
B	83-86	D	63-66
B-	80-82	D-	60-62
C+	77-79	F	0-59

ATTENDANCE

Regular and punctual attendance is considered essential to optimum academic achievement. As a student in this course, you will have a minimum attendance requirement of three days each week. This means you will need to log into Canvas and post an assignment or response on at least three days in each week. Any day missed below this minimum requirement will count as an absence. Students may be dropped from the course if two such absences are recorded during the class and **will be** dropped if four such absences occur or if a student fails to attend class in any given week.

INCOMPLETE AND LATE ASSIGNMENTS

All assignments are to be submitted by the due dates posted. There will be a 10% reduction of possible points for each day an assignment is late. If missing assignments result in the your failure to meet learning outcomes, this instructor may give up to a letter grade reduction on the final grade in addition to the loss of points for missing work. No assignments will be accepted after midnight on Sunday night, the last day of class.

While there are due dates for weekly assignments, you are welcome to post your work earlier in the week. In our discussions, late work means that others may not have the opportunity to respond to your comments. It also means that you will not have the benefit of as much interaction with other students as you will have if your assignment is posted on time. If you know you will be away on the day your assignment is due, please post your work before you leave.

Assignments will be considered late if posted after midnight Pacific Standard Time on the day they are due.

ACADEMIC HONESTY

Students should demonstrate academic honesty by doing original work and by giving appropriate credit to the ideas of others. As explained in the university catalog, academic dishonesty is the act of presenting information, ideas, and/or concepts as one's own when in reality they are the result of another person's creativity and effort. Violations of university academic honesty include cheating, plagiarism, falsification, aiding the academic dishonesty of others, or malicious misuse of university resources. An instructor who believes a situation involving academic dishonesty has been detected may assign a failing grade for a) that particular assignment or examination, and/or b) the course following the procedure in the university catalog. Students may appeal using the procedure in the university catalog. See [Academic Policies](#) for further information.

ACADEMIC ACCOMMODATIONS

While all students are expected to meet the minimum academic standards for completion of this course as established by the instructor, students with disabilities may request academic accommodations. At PLNU, students must request academic accommodations by filing documentation with the [Disability Resource Center](#) (DRC) located in the Bond Academic Center. Once the student files documentation, the Disability Resource Center will contact the student's instructors and provide written recommendations for reasonable and appropriate accommodations to meet the individual needs of the student.

SPIRITUAL CARE

PLNU strives to be a place where you grow as a whole person. To this end, we provide resources for our graduate students to encounter God and grow in their Christian faith. You'll find faith integration activities throughout this course. In addition, there are resources for your Christian faith journey available on the [Graduate Student Life](#) webpage.

FERPA POLICY

In compliance with federal law, neither PLNU student ID nor social security number should be used in publicly posted grades or returned sets of assignments without student written permission. This course will meet the federal requirements by posting grades and returning assignments via the Canvas gradebook. Also in compliance with FERPA, you will be the only person given information about your progress in this class unless you have designated others to receive it in the "Information Release" section of the student portal.

ACTIVE LEARNING AND EVIDENCE BASED MEDICINE

Your active participation in this class will be required. You will be responsible for your own learning by reviewing class material before and after class. I will guide you in this process; however, in the end the onus of learning will be your responsibility. **Become intrinsically motivated to improve yourself and your understanding of prescription and OTC medication and application of;** if you do this you will succeed every time.

Here are some KEYS to success:

- EFFORT (Work hard)
- APPROACH (Work smart)
- ATTITUDE (Think positively)

Evidence based medicine (EBM) is the integration of clinically relevant research, clinical skills and experience, and patient preferences and values (Sackett et al 2000). The increased awareness **and focus on the practice of Evidence Based Medicine comes from our daily need for valid information about diagnosis, prognosis, therapy, and prevention.** We want to ask local questions about the effectiveness of therapeutic modalities and design ways to find answers. The EBM portion of this course is **designed so students can explore therapeutic modalities commonly used in the athletic training setting** and determine what evidence is available to support their current uses.

USE OF TECHNOLOGY

In order to be successful in the online environment, you'll need to meet the minimum technology and system requirements; please refer to the *Technology and System Requirements* information located in the [Important Course Information](#) Module.

Problems with technology do not relieve you of the responsibility of participating, turning in your assignments, or completing your class work.

COURSE REQUIREMENTS

**Please Note: The PLNU Catalog states that 1 semester unit represents an hour of class per week, and 2 hours of preparation are normal for each hour of class. Therefore, if you spend about 6 hrs per week outside of class in preparation, you will significantly increase your chances of doing well!*

ASSIGNMENTS AT-A-GLANCE

The table below lists our assignments and their due dates. Click on any assignment to review it.

Code	Description
1 ATR 415	Pharmacology
AC-31	Assist the patient in the use of a nebulizer treatment for an asthmatic attack.
AC-32	Determine when use of a metered-dosed inhaler is warranted based on a patient's condition.
AC-33	Instruct a patient in the use of a meter-dosed inhaler in the presence of asthma-related bronchospasm.
AC-36i	asthma attacks
AC-36n	toxic drug overdoses
PHP-17	Explain the etiology and prevention guidelines associated with the leading causes of sudden death during physical activity, including but not limited to:
PHP-17b	Asthma
PHP-48	Explain the known usage patterns, general effects, and short- and long-term adverse effects for the commonly used dietary supplements, performance enhancing drugs, and recreational drugs.
PHP-49	Identify which therapeutic drugs, supplements, and performance-enhancing substances are banned by sport and/or workplace organizations in order to properly advise clients/patients about possible disqualification and other consequences.
TI-21	Explain the federal, state, and local laws, regulations and procedures for the proper storage, disposal, transportation, dispensing (administering where appropriate), and documentation associated with commonly used prescription and nonprescription medications.
TI-22	Identify and use appropriate pharmaceutical terminology for management of medications, inventory control, and reporting of pharmacological agents commonly used in an athletic training facility.
TI-23	Use an electronic drug resource to locate and identify indications, contraindications, precautions, and adverse reactions for common prescription and nonprescription medications.
TI-24	Explain the major concepts of pharmacokinetics and the influence that exercise might have on these processes.
TI-25	Explain the concepts related to bioavailability, half-life, and bioequivalence (including the relationship between generic and brand name drugs) and their relevance to the patient, the choice of medication, and the dosing schedule.
TI-26	Explain the pharmacodynamic principles of receptor theory, dose-response relationship, placebo effect, potency and drug interactions as they relate to the mechanism of drug action and therapeutic effectiveness.
TI-27	Describe the common routes used to administer medications and their advantages and disadvantages.
TI-28	Properly assist and/or instruct the patient in the proper use, cleaning, and storage of drugs commonly delivered by metered dose inhalers, nebulizers, insulin pumps, or other parenteral routes as prescribed by the physician.

- TI-28a metered dose inhalers
- TI-28b nebulizers
- TI-28c insulin pumps
- TI-29 Describe how common pharmacological agents influence pain and healing and their influence on various therapeutic interventions.
- TI-30 Explain the general therapeutic strategy, including drug categories used for treatment, desired treatment outcomes, and typical duration of treatment, for the following common diseases and conditions: asthma, diabetes, hypertension, infections, depression, GERD, allergies, pain, inflammation, and the common cold.
- TI-31 Optimize therapeutic outcomes by communicating with patients and/or appropriate healthcare professionals regarding compliance issues, drug interactions, adverse drug reactions, and sub-optimal therapy.