

## PHRM 123 Pharmacology for Pharmacy Technicians I 2 Credits

### Course Description

This course focuses on the basic concepts of pharmacology, including drug uses, sources, major therapeutic classifications of medications and actions of drugs including the common adverse reactions of the major therapeutic classifications. This course covers the cardiovascular system, GI and respiratory systems, endocrine system and the immune systems. Prerequisites and/or Corequisites: BIOL 115, PRMT 101, PRMT 102, PRMT 111 and PHRM 123.

### Required Text

*Pharmacology for Pharmacy Technicians 2<sup>nd</sup> Edition*, Moscou & Snipe, Mosby Elsevier, 2013  
*Pharmacology for Pharmacy Technicians 2<sup>nd</sup> Edition, Workbook*, Moscou & Snipe, Mosby Elsevier, 2013

Contact Coleen at the NDSCS Bookstore for the most current textbook information (1-800-342-4325, ext. 2239 or [coleen.thoe@ndscs.edu](mailto:coleen.thoe@ndscs.edu)). You may also visit the NDSCS Bookstore web site at [www.ndscsbookstore.com](http://www.ndscsbookstore.com) and search for book information by class by clicking the "Textbook" tab.

### Learning Outcomes

This course prepares the student with a basic working knowledge of drug therapy associated with common health problems. This course serves to meet goal 34 "Understand the use and side effects of prescription medications, nonprescription medications and alternative therapies used to treat common disease states", of the ASHP Model Curriculum.

1. Define Pharmacology
2. Explain the difference in chemical, generic, trade or brand name.
3. Name four primary sources of drug and biological products.
4. Understand patients' rights
5. Know the common dosage forms of drugs and why a particular form is chosen.
6. Describe the mechanism of drug action, including receptors and their function.
7. Cite six examples of variables that affect drug absorption.
8. Understand that some drug effects are beneficial whereas others are harmful.
9. Be familiar with the common terms used to describe drug interactions.
10. Recognize the effects of age on drug safety and effectiveness.
11. Be familiar with the standard immunizations, their components, their actions and recommendations for their use.
12. Describe the difference between drug misuse and drug abuse.
13. Describe the major differences between the parasympathetic and sympathetic divisions of the autonomic nervous system.
14. Describe the major neurotransmitters and their principle actions.
15. Describe the blood-brain barrier.
16. Compare and contrast the "fight or flight" response with the "rest and repose" response.
17. Classify the medications used to treat depression, anxiety schizophrenia and other psychoses.
  - a. Describe the mechanism of action of each.
  - b. ID any warning labels and precautionary messages associated with each.

- c. Learn the terminology associated with depression.
18. Compare and contrast the etiology of Huntington's disease and Parkinson's disease.
  - a. Classify medications used for each.
  - b. Describe their mechanisms of action.
  - c. ID any warning labels and precautionary messages associated with each.
19. Describe the etiology associated with seizures.
20. Classify the medications used for the treatment of seizures.
  - a. ID any warning labels and precautionary messages associated with these medications.
  - b. Learn the terminology associated with seizures.
21. Describe the etiology of pain and migraine headaches.
22. Compare and contrast the function of neurotransmitters associated with pain and migraine headaches.
23. Classify the medications used for pain and migraine headaches.
  - a. Define acute and chronic pain and give examples of each
  - b. Distinguish between narcotic and nonnarcotic analgesics.
  - c. Classify the medications used for each
  - d. Describe the mechanisms of action for each class of drugs used for pain and migraine headaches.
  - e. ID any warning labels and precautionary messages associated with each.
  - f. Learn the terminology associated with pain and migraine headaches.
24. Classify the medications used for Alzheimer's disease.
  - a. ID any warning labels and precautionary messages associated with these medications.
  - b. Learn the terminology associated with Alzheimer's
25. Describe the types of sleep disorders.
26. Describe the etiology of attention-deficit/hyperactivity disorders.
  - a. Describe the function of the neurotransmitters associated with sleep disorders and ADHD
  - b. Classify the medications used in the treatment of sleep and ADHD.
  - c. Describe the mechanisms of action of these drugs.
  - d. ID any warning labels and precautionary messages associated with these medication.
  - e. Identify any significant drug interactions.
  - f. Learn the terminology associated with sleep disorders and ADHD.
27. Discuss the process of neuromuscular transmission.
28. List and classify the drugs used for skeletal muscle relaxation, to treat muscle spasms, autoimmune diseases of the skeletal muscle system, osteoporosis, Paget's and gout.
  - a. Describe the mechanism of action of each.
  - b. Describe the mechanism of action for the reversal of neuromuscular blockade.
  - c. ID any warning labels and precautionary messages associated with these drugs.
  - d. Learn the terminology associated with these conditions.
29. Learn the terminology associated with the eye and ear.
30. List and categorize the medications used to treat glaucoma.
  - a. ID any warning labels and precautionary messages associated with these drugs.
31. Become familiar with the disorders of the ear.
  - a. List and categorize the mediations used in the treatment of disorders of the ear.
  - b. ID any warning labels and precautionary messages associated with these drugs.
32. Learn the terminology associated with infections of the eyes and ears.
  - a. List and describe the infections of the eye and ear.

- b. List and categorize the mediations used to treat these infections.

## **Tie to Program Learning Outcomes**

1. Students will develop an understanding of the association of major drug classifications and their association with the body systems. Students will also understand the uses and side effects of prescription medications used to treat common disease states. The students will utilize this information in assisting the pharmacist in the provision of pharmaceutical care. This knowledge will insure the passage of the national certification exam.
2. Assessment of these learning outcomes will be accomplished through a successful experiential semester and passage of the Pharmacy Technician Certification Board Exam.

## **Course Goals**

1. The student technician will be familiar with some of the general principles of pharmacology.
2. The student technician will have knowledge of the drug classifications and the disease states for which they are prescribed as outlined below.
3. The student technician will possess knowledge of the drugs and conditions for the central nervous system.

## **Course Policies and Procedures**

### **Access Policy: Computer Failures and Viruses**

Online students must maintain computer access at all times to the online course. Lack of computer access as an excuse for late work or missed exam/quiz will NOT be accepted. Review the [Computer Access Policy](#) to learn how you can take a proactive approach to your online success.

### **Student Attendance**

Regular attendance and completion of all assignments, on time and as scheduled, is important to your success in this course. An online student who does not regularly attend their online class for a period of seven consecutive days may be dropped from the course. Attendance is evidenced by weekly completion of assignments and/or participation in online discussions. Efforts to contact inactive students are attempted as soon as each semester begins; however, if there is no response from the student and inactivity continues, a drop will be enacted. See the entire NDSCS Attendance Policy at [www.ndscs.edu/online-attendance](http://www.ndscs.edu/online-attendance).

If your instructor is unexpectedly unavailable and may be delayed in reviewing or correcting assignments, you will be notified of this as a sign of courtesy and respect.

### **Online Student Participation and Conduct Guidelines**

The practices of courtesy and respect that apply in the traditional classroom also apply online. However, the expectations and practice differ in the online classroom to greater extent. Review the Online Student Participation and Conduct Guidelines ([Appendix A](#)) to learn of these expectations.

### **Assignments**

Please follow the order of units as each unit will build onto the next one and will be accessible according to the schedule posted within the online course.

Assignments and quizzes within each chapter are **due within specified time frames**. Refer to the Schedule for specific due dates.

Assignments not completed by the specified deadline but submitted late may have **10% of grade points deducted** at instructor's discretion.

## Submitting Assignments

All assignments should be turned in via **Dropbox** unless otherwise specified. You are **strongly encouraged** to make hard copies of your assignments and communications with the instructor to avoid losing data in the case of technical issues. *At the first sign of problems*, contact your Internet Service Provider (ISP) immediately.

It is your responsibility to access the class on another computer in the event of hardware or software problems. If your problems are not cleared up within 12 hours, contact the instructor to make other arrangements.

## Grading Policies

Your performance in this class will be based on the quality and accuracy of your assignments, quizzes, and exams. Assignments that do not meet the deadlines given by the instructor will be reduced 10% per day.

Students are expected to spend several hours weekly in preparation for class.

Students are expected to turn in all course work on time.

## Grading Scale

Letter grades will be awarded as follows:

LETTER GRADE	PERCENT
A	94-100%
B	86-93%
C	78-85%
D	70-77%
F	Below 69%

Online quizzes and exams are a part of this class to assess your progress and whether you have met the course objectives. Students are expected to take all quizzes and exams at their specified time, on the specified day.

Academic integrity is important to NDSCS, your instructor, and you, the student. In order to ensure academic integrity of the online quizzes and exams a "Proctor" will be used at times. A proctor is simply a reputable person that assures your instructor that only the allowed reference materials were used on an assignment.

The Proctor Form will be available for download under Course Home. You will need to complete and submit prior to your first quiz.

**The Exam Proctor Form must be completed and returned to the instructor within 10 calendar days.** Mail to address specified on the Exam Proctor Form. If Proctor Form is not received within 10 days, 10% will be deducted from quizzes/exams taken until the Proctor Form is received.

**Not all quizzes and exams will require a proctor.** Your instructor will be as clear as possible regarding the need for a proctor when making an assignment. If a proctor is required - this will be made clear to you as early as feasible. If there is ever any question regarding the need for a proctor - contact your instructor as soon as possible.

## **Student-Instructor Communications**

While an online class is available 24 hours a day and offers greater flexibility for the student and instructor, keep in mind that your instructor will not be available 24 hours a day. Instructors will check email, voicemail, and Cyber Office messages on a regular basis, but there may be times when they are unavailable due to other commitments and job responsibilities. Email, voicemail, or Cyber Office Messages will be responded to as time allows. As a general rule, you can expect your direct questions to be answered within 24 hours during week days.

When sending an email, please include your full name so your instructor knows who they are responding to. Often, the email address does not indicate who is sending the message.

## **Student E-Mail Accounts**

NDSCS students are to use an NDSCS email account exclusively to ensure the lines of communication with your instructor and NDSCS are not broken, which often happens with other email providers. You can access your email account by following instructions at [www.ndscs.edu/It-Setup](http://www.ndscs.edu/It-Setup). If you need help accessing your NDSCS email, contact the NDSCS IT Service Desk at 800-342-4325 ext 3333 or [ndscs.servicedesk@ndscs.edu](mailto:ndscs.servicedesk@ndscs.edu).

To make your NDSCS email account your preferred email address, log into your CampusConnection account and check the “preferred” box by campus email.

The NDSCS e-mail system provides students with an entire suite of services such as:

- 10 GB storage for email
- Instant messaging through Skype for Business
- Rich calendaring
- Photo sharing
- Multi-browser support
- SMS alerts to mobile phones

## **Academic Integrity**

Integrity is an NDSCS core value and there is an expectation that all students, as members of the college community, adhere to the highest levels of academic integrity.

Dishonesty in class, laboratory, shop work or tests is regarded as a serious offense and is subject to disciplinary action by the instructor and dean of the respective division. For more information, refer to the NDSCS Student Planner or [College Catalog](#) under College Policies and Basic Regulations of Conduct (page 32).

## Types of Misconduct

**Cheating:** Intentionally using or attempting to use unauthorized materials, information, or study aids in any academic exercise.

**Fabrication:** Intentionally and unauthorized falsification or invention of any information or citation in an academic exercise.

**Facilitating academic dishonesty:** Intentionally or knowingly helping or attempting to help another to commit an act of academic dishonesty.

**Plagiarism:** Intentionally or knowingly representing the words or ideas of another as one's own in any academic exercise.

## Disabilities and Special Needs

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and the **Student Accessibility Coordinator** (phone 671-2623, or toll-free 1-800-342-4325 ext. 3-2623) as early as possible in the term.

## APPENDIX A ONLINE STUDENT PARTICIPATION AND CONDUCT GUIDELINES

Online courses are based on the premise that students learn best in a community. The instructor plays an important role, but this is a different role than most instructors play in the traditional, face-to-face classroom. While you may see a shift in the way classes work, you'll also notice that some things don't change: the practices of courtesy and respect that apply in the ordinary classroom also apply online, and may actually require more attention in this venue. Here are some guidelines:

1. **Get involved.** In the online environment, it's not enough to show up! Your voice must be heard in order to show your presence. Your comments are needed to add to the information, the shared learning, and the sense of community in each class.
2. **Be persistent.** Remember that for many this is a fairly new environment. Each instructor still sets the rules, and you need to abide by them; however, if you run into any difficulties, don't wait! Send your instructor an email immediately or post in the Discussion Area. Most problems are easily solved, but your instructor and your fellow students need to hear from you before they can help.
3. **Share tips, helps, and questions.** For many, taking online courses is a new experience. There are no dumb questions, and even if you think your solution is obvious, please share it by posting it in the Discussion Area. For every student who asks a question, there are 10 others wanting to know the same thing.
4. **Think before you push the Send button.** Did you say just what you meant? How will the person on the other end read the words? While you can't anticipate all reactions, do read over what you've written before you send it.
5. **Consider the context.** Remember that we can't see the grin on your face when you make a sarcastic comment, we can't see the concern on your face if you only say a couple of words, and we can't read your mind and fill in the gaps if you abbreviate your comments. So: help us "see" you by explaining your ideas fully.
6. **Ask for feedback.** Not sure how your ideas and comments will be taken? Remember there's a person on the other side. If you disagree with what someone has said, practice all your communication skills as you express that disagreement. "Flaming," or flying off the handle and ranting at someone is unacceptable; it is the equivalent of having a tantrum, something most of us wouldn't do in an onsite, face to face classroom.
7. **Act with respect.** Any discriminatory, derogatory or inappropriate comments are unacceptable and subject to the same disciplinary action that they would receive if they occurred in the face to face classroom. If you have concerns about something that has been said, please contact your instructor.
8. **Exercise integrity.** Plagiarism, cheating, and other violations of ethical student behavior are serious actions in a learning community. See Academic Integrity Policy in the course syllabus.
9. **Recognize the consequences.** Consequences of online student behavior that contradicts the NDSCS Academic Integrity policy will be addressed on an individual basis and in accordance with NDSCS Academic Integrity policy. Refer to the NDSCS Student Planner or College Catalog for more information.

\*Adapted with permission from Dr. C. A. Keller, San Antonio College