CHEM263 Introduction to Pharmacology (STARS 94302)
Fall 2014
Western Illinois University
College of Arts and Sciences
Department of Chemistry
Online Course Syllabus

Credit: Three semester hours
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Office hours: Mon. 4:00 pm - 5:00 pm, Wed. and Fri. 3:00 pm - 4:30 pm
Online virtual office hours: In order to foster a sense of community, I will be available via online chat, either video or voice, by Skype (Skype account: mlchen1000) on Thurs. and Fri. from 8:00 pm to 9:00 pm, CST.

Required Textbook

Course Description:
This course introduces the students to the basic concepts of pharmacology and the major categories of pharmacologic agents, and explores the myths and facts about vitamins, nutritional supplements, and common herbal medicines.

Prerequisites: either BIOL 101 or ZOOL 200 or ZOOL 330;
and either CHEM 102 or CHEM 330.

Course Objectives

Week 1 General Concepts of Pharmacology (08/25 - 08/31)

Chapter 1 Pharmacology: An Introduction
Learning Outcomes: After studying this chapter, you should be able to:
1. define pharmacology and its major subdivisions.
2. describe what a drug is and explain the differences between a therapeutic effect, side effect, and toxic effect.
3. explain the terms site of action, mechanism of action, receptor site, agonist, and antagonist.
4. explain the relationship between drug dosage and drug response, and the relationship
between drug response and time.
5. describe the guidelines for drug safety and drug approval by the FDA.
6. identify drug nomenclature and the different terminology used in naming drugs.
7. recognize the drug references and understand the information they provide.

Chapter 2 Pharmacokinetics and Factors of Individual Variation

Learning Outcomes: After studying this chapter, you should be able to:
1. describe different forms of drug products and the routes by which they are administered.
2. understand the pharmacokinetic factors that determine the absorption, distribution, metabolism, and excretion of drugs.
3. describe how half-life, blood drug level, and bioavailability relate to drug response.
4. identify several factors of individual variation that can alter drug response.
5. describe the drug factors that relate to pediatric drug administration.
6. define the different types of drug interaction.
7. explain the basic terminology of chronic drug administration and drug dependence.

Assignments:
1. Chapter 1 Reading (p. 4-12)
2. Chapter 2 Reading (p. 17-29)
3. Week 1 Quiz
4. Week 1 Discussion

Chapter 3 Geriatric Pharmacology

Learning Outcomes: After studying this chapter, you should be able to:
1. describe the main physiological changes that occur with aging.
2. identify several factors that affect the absorption and distribution of drugs in the elderly.
3. list several factors that affect the metabolism and excretion of drugs in the elderly.
4. recognize the effects of nutrition and age-related diseases on drug response.
5. explain the problems associated with drug compliance in the elderly.

Chapter 4 Math Review and Dosage Calculations

Learning Outcomes: After studying this chapter, you should be able to:
1. solve basic arithmetical problems involving fractions, decimals, and percents.
2. write ratio and proportion equations and solve for the unknown term.
3. convert one metric unit of measure to another.
4. solve drug problems involving solutions and solid dosage forms.
5. solve problems involving pediatric dosing.
6. understand the monitoring of IV infusion rates.

Assignments:
1. Chapter 3 Reading (p. 36-41)
2. Chapter 4 Reading (p. 45-53)
3. Week 2 Quiz
4. Week 2 Discussion * Exam 1 (Chapter 1-4)
**Chapter 5 Introduction to the Autonomic Nervous System**

**Learning Outcomes:** After studying this chapter, you should be able to:
1. describe the two divisions of the ANS and the main functions of each division.
2. explain how sympathetic and parasympathetic nerves interact with each other to regulate organ function (maintain homeostasis).
3. describe the fight or flight reaction and explain how sympathetic activation affects the activities of the different organs.
4. describe the main organ effects caused by parasympathetic stimulation.
5. describe the different autonomic receptors that are stimulated by acetylcholine, norepinephrine, and epinephrine.

**Chapter 6 Drugs Affecting the Sympathetic Division**

**Learning Outcomes:** After studying this chapter, you should be able to:
1. explain how the adrenergic nerve endings function both to release and to inactivate norepinephrine.
2. classify the different adrenergic receptors and describe the actions they mediate.
3. describe the effects of norepinephrine (NE) and epinephrine (EPI) on alpha and beta receptors.
4. describe the main pharmacological effects and uses of alpha-adrenergic drugs.
5. describe the main pharmacological effects and uses of beta-adrenergic drugs.
6. describe the clinical indications and adverse effects associated with alpha-blocking drugs.
7. Recognize the clinical indications and adverse effects associated with beta-blocking drugs.
8. Describe the mechanism of action of the adrenergic neuronal blocking drugs.

**Assignments:**
1. Chapter 5 Reading (p. 60-67)
2. Chapter 6 Reading (p. 72-85)
3. Week 3 Quiz
4. Week 3 Discussion

**Week 4 Pharmacology of the Peripheral Nervous System (09/15-09/21)**

**Chapter 7 Drugs Affecting the Parasympathetic Division**

**Learning Outcomes:** After studying this chapter, you should be able to:
1. describe the neuronal release and inactivation of acetylcholine.
2. list the three types of cholinergic receptors and the tissues where they are located.
3. compare the pharmacologic actions and uses of the direct-acting and indirect-acting cholinergic drugs.
4. describe the clinical indications for the indirect-acting anticholinesterase drugs.
5. describe the pharmacologic actions, uses, and adverse effects of anticholinergic drugs.
6. list the preferred drug treatment for the most common conditions affected by parasympathetic activity.
Chapter 8 Drug Affecting the autonomic Ganglia

Learning Outcomes: After studying this chapter, you should be able to:
1. describe the pharmacological effects of ganglionic stimulation.
2. list the different drug preparations used in nicotine replacement therapy and the adverse effects associated with them.
3. describe the main pharmacologic effects and uses of ganglionic blockers.
4. discuss the adverse effects associated with the use of ganglionic blocking drugs.

Chapter 9 Skeletal muscle relaxants

Learning Outcomes: After studying this chapter, you should be able to:
1. describe at least two ways in which skeletal muscles may be relaxed.
2. explain why muscle relaxation is necessary during diagnostic and surgical procedures.
3. examine how these drugs may alter the ability to control respiration.
4. describe how tranquilizers relax skeletal muscles through a different mechanism of action than nondepolarizing blockers.
5. identify drugs that are used in the chronic treatment of spastic muscle disorders.
6. list three potential adverse effects associated with muscle relaxants.

Assignments:
1. Chapter 7 Reading (p. 91-101)
2. Chapter 8 Reading (p107-111)
3. Chapter 9 Reading (115-125)
4. Week 4 Quiz
5. Week 4 Discussion
6. * Exam 2 (Chapter 5-9)

Week 5 Pharmacology of the Heart (09/22-09/28)

Chapter 21 Review of Cardiac Physiology and Pathology

Learning Outcomes: After studying this chapter, you should be able to:
1. describe the normal flow of blood through the chambers and blood vessels of the heart.
2. identify the different parts of the conduction system and how the flow of electrical impulses coordinates contraction of the cardiac chambers.
3. explain autonomic nervous system regulation of the heart.
4. recognize the different wave forms of the ECG and how they relate to the electrical activity of the heart.
5. identify the clinical features of chronic heart failure (CHF), coronary artery disease (CAD), and myocardial infarction (MI).

Chapter 22 Treatment of Heart failure

Learning Outcomes: After studying this chapter, you should be able to:
1. describe the symptoms of chronic heart failure and understand the compensatory activation of the sympathetic nervous system and the renin-angiotensin-aldosterone mechanism.
2. describe the mechanisms of action and uses of diuretics in CHF.
3. describe how vasodilator drugs reduce preload and afterload and understand the mechanisms of action of the different types of vasodilator drugs.
4. explain the use of beta adrenergic blockers in the treatment of CHF.
5. describe the mechanism of action of digoxin and list the adverse effects and potentially serious toxicities of this drug.

Assignments:
1. Chapter 21 Reading (p. 322-326)
2. Chapter 22 Reading (p.331-341)
3. Week 5 Quiz
4. Week 5 Discussion

Week 6 Pharmacology of the Heart (09/29-10/05)

Chapter 23 Antiarrhythmic Drugs
Learning Outcomes: After studying this chapter, you should be able to:
1. identify the basic terminology and descriptions associated with cardiac arrhythmias.
2. describe the phases of the cardiac action potential in relationship to the activity of Na, K, and Ca ions.
3. explain the mechanism of action and main differences between the IA, IB, and IC antiarrhythmic drugs.
4. describe the antiarrhythmic actions and uses of the beta-blockers.
5. explain the mechanism of action of the class III antiarrhythmic drugs and describe the most serious adverse effects of amiodarone.
6. describe the antiarrhythmic actions of the calcium channel blockers and their clinical uses.
7. describe the special precautions required with the use of antiarrhythmic drugs.

Chapter 24 Antianginal Drugs
Learning Outcomes: After studying this chapter, you should be able to:
1. classify the main types of angina pectoris and the usual cause of each type.
2. explain the mechanism of action of the nitrate drugs and compare routes of administration and onset of action of the different nitrate preparations.
3. describe the mechanism of action of beta-blockers in the treatment of angina and CAD.
4. describe the pharmacologic effects produced by the different calcium channel blockers.
5. classify the preferred therapies for the different types of angina.

Assignments:
1. Chapter 23 Reading (p.347-358)
2. Chapter 24 Reading (p.363-373)
3. Week 6 Quiz
4. Week 6 Discussion
* Exam 3 (Chapter 21-24)

Week 7 Pharmacology of the Vascular and Renal Systems (10/06-10/12)

Chapter 25 Diuretics
Learning Outcomes: After studying this chapter, you should be able to:
1. explain the role of the kidneys in water excretion.
2. describe the difference between renal filtration and renal reabsorption.
3. identify two areas of the renal tubules where sodium and water transport are connected.
4. describe the function of the kidney in maintaining acid balance.
5. explain how the action of each diuretic differs from that of thiazide diuretics.
6. explain what happens when a diuretic becomes refractory.
7. explain how diuretics affect organs like the eye and liver.
8. describe three major side effects of each diuretic.
9. describe the clinical use and clinically significant terms associated with diuresis and diuretics.

**Chapter 26 Antihypertensive Drugs**

**Learning Outcomes:** After studying this chapter, you should be able to:

1. identify the major physiological factors that regulate blood pressure.
2. describe the role of the kidneys and renin-angiotensin-aldosterone system in blood pressure regulation.
3. explain the antihypertensive actions of thiazide and loop diuretics.
4. compare the pharmacologic actions of the different classes of drugs that reduce sympathetic nervous system activity.
5. describe the mechanism of action of the vasodilator drugs.
6. compare the pharmacologic actions of the ACE inhibitors and the angiotensin receptor blockers.
7. describe the treatment of hypertensive crisis.
8. explain some of the important factors involved in patient education concerning hypertension.
9. classify the drug classes that are usually preferred for the treatment of hypertension.

**Assignments:**

1. Chapter 25 Reading (p.376-393)
2. Chapter 26 Reading (p.398-409)
3. Week 7 Quiz
4. Week 7 Discussion

**Week 8 Pharmacology of the Vascular and Renal Systems (10/13-10/19)**

**Chapter 27 Anticoagulants and Coagulants**

**Learning Outcomes:** After studying this chapter, you should be able to:

1. describe the mechanism by which a blood clot forms and is dissolved.
2. explain the two ways the commonly used anticoagulants inhibit clot formation.
3. explain why heparin must be administered by injection.
4. describe the primary response to anticoagulant overdose and routine tests used to monitor anticoagulants.
5. explain when clot dissolution is clinically useful.
6. explain the action for drugs that are useful to promote clotting.
7. describe the adverse effects of anticoagulants and fibrinolytic drugs.
8. explain terminology associated with drugs that affect coagulation.

**Chapter 29 Hypolipidemic Drugs**

**Learning Outcomes:** After studying this chapter, you should be able to:

1. describe the importance of triglycerides and cholesterol and their role in
atherosclerosis.

2. describe the treatment of hyperlipidemia.
3. explain the mechanism of action of five different hypolipidemic drugs.
4. explain why the HMG-CoA inhibitors are more effective than other hypolipidemic drugs.
5. describe the main adverse effects of each hypolipidemic drug class and how liver function tests are affected.
6. explain the essential terminology associated with atherosclerosis and hypolipidemic drugs.

Assignments:
1. Chapter 27 Reading (p.414-431)
2. Chapter 29 Reading (p.459-474)
3. Week 8 Quiz
4. Week 8 Discussion

* Exam 4 (Chapter 25-27 and 29)

Week 9 Pharmacology of the Central Nervous System (10/20-10/26)

Chapter 11 Introduction to the Central Nervous System
Learning Outcomes: After studying this chapter, you should be able to:
1. describe the main anatomic structures of the brain, the difference between gray and white matter, and the functions of the cerebral cortical lobes and basal ganglia.
2. list the main parts of the brainstem and discuss the functions associated with each part.
3. describe the major function of the cerebellum.
4. describe the basic structure and function of the spinal cord.
5. describe the reticular formation and the limbic system and discuss the importance of each.

Chapter 12 Sedative-Hypnotic Drug and Alcohol
Learning Outcomes: After studying this chapter, you should be able to:
1. describe the stages of the sleep cycle and the main characteristics of each stage.
2. explain the mechanism of action of the sedative-hypnotic drugs in relationship to their actions with GABA and the chloride ion channel.
3. describe the adverse effects of barbiturates, the addiction liability, and treatment of barbiturate overdose.
4. describe the mechanism of action of the benzodiazepine hypnotics and the pharmacokinetic differences between the short-acting and longer-acting drugs.
5. describe the mechanism of action of eszopiclone, zaleplon, and zolpidem and the advantages of these drugs over barbiturates and benzodiazepines.
6. describe the major pharmacologic effects and adverse reactions of ethyl alcohol.

Assignments:
1. Chapter 11 Reading (p.148-152)
2. Chapter 12 Reading (p.157-168)
3. Week 9 Quiz
4. Week 9 Discussion
Week 10 Pharmacology of the Central Nervous System (10/27-11/2)

Chapter 13 Antipsychotic and antianxiety Drugs
**Learning Outcomes:** After studying this chapter, you should be able to:
1. explain the importance of dopamine and serotonin in relationship to psychosis and antipsychotic drug therapy.
2. describe the different pharmacologic actions of the phenothiazine drugs and the adverse neurological effects associated with these drugs.
3. compare the pharmacologic actions and adverse effects of the butyrophenones with the phenothiazines.
4. describe the actions and adverse effects of the thioxanthine antipsychotic drugs.
5. describe the actions and advantages of the atypical antipsychotic drugs when compared to the typical antipsychotic drugs.
6. compare the mechanism of action and pharmacologic effects of the antianxiety benzodiazepines with buspirone.

Chapter 14 Antidepressants, psychomotor Stimulants and Lithium
**Learning Outcomes:** After studying this chapter, you should be able to:
1. identify the different types of depression and the importance of neurotransmitter function in the cause and treatment of depression.
2. describe the mechanism of action and adverse effects profile of the selective serotonin reuptake inhibitors (SSRIs).
3. describe the major difference between the SSRIs and the atypical SSRI antidepressants.
4. describe the mechanism of action and the adverse effects profile of the tricyclic antidepressants (TCAs).
5. explain the mechanism of action of the MAO inhibitors and describe the adverse effects and dietary restrictions relating to these drugs.
6. describe the use of psychomotor stimulants in the treatment of narcolepsy, hyperkinetic syndrome, and obesity.
7. explain the use of lithium in mania and bipolar disorder and the adverse effects associated with its use.
8. identify the preferred therapies for depression, mania, and bipolar disorder.

Assignments:
1. Chapter 13 Reading (p.173-182)
2. Chapter 14 Reading (p. 188-197)
3. Week 10 Quiz
4. Week 10 Discussion

Week 11 Pharmacology of the Central Nervous System (11/03-11/09)

Chapter 15 Psychotomimetic Drugs of abuse
**Learning Outcomes:** After studying this chapter, you should be able to:
1. describe the mechanisms of action of hallucinogenic drugs and the psychotomimetic effects produced.
2. explain the dose-related hallucinogenic phases and the treatment for intoxication.
3. identify the mechanism of action, effects, and treatment for intoxication with psychomotor stimulants.
4. describe the mechanism of action, effects, and treatment for intoxication with PCP.
5. explain the mechanism of action, pharmacokinetics, and pharmacological actions of marijuana.

**Chapter 16 Antiepileptic Drugs**

**Learning Outcomes:** After studying this chapter, you should be able to:
1. describe the main clinical features of generalized and partial epileptic seizures.
2. compare the mechanism of action and uses of phenobarbital with those of phenytoin, carbamazepine, and valproic acid.
3. identify the mechanism of action of the drugs primarily effective for partial seizures.
4. describe the mechanism of action of ethosuximide and drugs used in the treatment of absence seizures.
5. describe the treatment of status epilepticus.
6. describe the preferred therapies for the different types of epileptic seizures.

**Chapter 17 Antiparkinson Drugs**

**Learning Outcomes:** After studying this chapter, you should be able to:
1. list the major symptoms of Parkinson’s disease.
2. explain the relationship between dopamine and acetylcholine in the basal ganglia.
3. explain the mechanism of action of levodopa and understand the common adverse effects and different movement disorders that occur over time with this drug.
4. describe the mechanism of action of the MAO-B and COMT inhibitors and how they affect levodopa metabolism.
5. list the dopamine receptor agonist drugs and explain their mechanism of action and adverse effects.
6. describe the therapeutic role of amantidine and the anticholinergic drugs.

**Assignments:**
1. Chapter 15 Reading (p.203-211)
2. Chapter 16 Reading (p.216-224)
3. Chapter 17 Reading (p.229-237)
4. Week 11 Quiz
5. Week 11 Discussion
6. **Exam 5 (Chapter 11-17)**

**Week 12 Pharmacology of the Endocrine System (11/10-11/16)**

**Chapter 35 Introduction to Endocrine System**

**Learning Outcomes:** After studying this chapter, you should be able to:
1. describe the basic function of a hormone.
2. explain the hypothalamic-anterior pituitary target organ axis.
3. explain how hormones produce their effects (the mechanisms of hormone action for water-soluble and lipid-soluble hormones).
4. describe the endocrine functions of the hypothalamus.
5. describe the endocrine functions of the anterior pituitary.
6. describe negative feedback, and give an example.
Chapter 36 Adrenal Adrenocorticoid Secretions

Learning Outcomes: After studying this chapter, you should be able to:
1. compare the adrenal medulla and cortex, and identify the two main classes of steroids.
2. describe the regulation of cortisol secretion.
3. explain the functions and the administration of glucocorticoids.
4. explain the functions and administration of mineralocorticoids.
5. describe adverse effects associated with chronic (routine) use of steroids.

Chapter 37 Gonadal Hormone, Oral Contraceptives, and Erectile Dysfunction

Learning Outcomes: After studying this chapter, you should be able to:
1. describe the hypothalamic-anterior pituitary-gonadal axis.
2. correlate the follicular, hormonal, and endometrial changes that occur in the menstrual cycle to the hormones released.
3. identify the different classes of contraceptives and explain the mechanisms of action for each class.
4. describe the difference between monophasic and multiphasic oral contraceptives.
5. describe the Women’s Health Initiative, its findings, and the effects this study has had on hormonal replacement therapy in postmenopausal women.
6. describe the mechanisms of action for the types of fertility drugs.
7. describe the mechanisms of action of the classes of androgenic drugs.

Assignments:
1. Chapter 35 Reading (p.586-594)
2. Chapter 36 Reading (p.599-612)
3. Chapter 37 Reading (p. 619-639)
4. Week 12 Quiz
5. Week 12 Discussion

Week 13 Pharmacology of the Endocrine System (11/17-11/23)

Chapter 38 Drugs Affecting The Thyroid and Parathyroid Glands and Bone Degeneration

Learning Outcomes: After studying this chapter, you should be able to:
1. explain the terminology associated with the functions and conditions of the thyroid and parathyroid glands.
2. describe the functions and hormone regulation of the thyroid gland and the parathyroid glands.
3. name two secretions from the thyroid that stimulate tissue growth.
4. identify two effects that occur with acute thyroid deficiency in adults and chronic thyroid deficiency in children.
5. describe hormonal regulation of calcium.
6. describe the bone remodeling process and its relationship to osteoporosis and describe the drug therapy for osteoporosis.
7. describe the mechanisms of action of drugs used in the treatment of hypothyroidism.
and hyperthyroidism.

8. Explain three adverse effects or drug interactions that occur with hormone replacement or antithyroid drugs.

**Chapter 39 Pancreatic hormones and antidiabetic Drugs**

**Learning Outcomes:** After studying this chapter, you should be able to:
1. describe the factors that affect regulation of blood glucose concentration.
2. differentiate between insulin and glucagon and the action of oral antidiabetic drugs.
3. describe the symptoms of type I and type 2 diabetes mellitus.
4. classify the different types of insulin.
5. describe insulin, glucagons, and the action of oral antidiabetic drugs.

**Assignments:**
1. Chapter 38 Reading (p.644-659)
2. Chapter 39 Reading (p.665-691)
3. Week 13 Quiz
4. Week 13 Discussion
* Exam 6 (Chapter 35, 37, 38-39)

**Week 14 (11/24-11/30) Thanksgiving Break**

**Week 15 Pharmacology of Infectious Diseases (12/01-12/07)**

**Chapter 41 Antibacterial Agents**

**Learning Outcomes:** After studying this chapter, you should be able to:
1. describe the use of the gram stain in bacterial identification and understand culture and sensitivity testing.
2. identify the meaning of the terms antibacterial spectrum, bacterial resistance, chemoprophylaxis, and chemotherapy.
3. explain the mechanism of action, main uses, and most serious adverse effects of the following: penicillins, cephalosporins, aminoglycosides, tetracyclines, sulfonamides, macrolides, fluoroquinolones, miscellaneous antimicrobial drug, and antitubercular drugs.

**Chapter 45 Antineoplastic Agents**

**Learning Outcomes:** After studying this chapter, you should be able to:
1. define the terms chemotherapy, metastasis, remission, drug resistance, and myelosuppression.
2. describe the mechanism of action of the alkylating drugs and the adverse effects associated with these drugs.
3. explain how the different types of antimetabolite drugs inhibit the growth of cancer cells.
4. explain the actions of plant extracts, antibiotics, and other natural products to affect cancer cells.
5. describe the mechanism of action of the different types of hormone antagonists.
6. explain the use of monoclonal antibodies and related drugs in the treatment of cancer.

**Assignments:**
1. Chapter 41 Reading (p.712-729)
Chapter 19 Opioid Analgesics

Learning Outcomes: After studying this chapter, you should be able to:
1. explain the pathway for pain recognition and how opioids produce analgesia.
2. describe the sources of opioid analgesics.
3. discuss the pharmacological effects of these drugs.
4. discuss administration, absorption, and metabolism of these drugs.
5. describe the adverse effects of these drugs.
6. explain acute opioid poisoning.
7. describe the actions of opioid antagonists and possible drug interaction.
8. describe the specific terms associated with pain, analgesia, addiction, cough, and opioid receptors.

Chapter 20 Nonopioid Analgesics, Nonsteroidal Antiinflammatories, and Antigout Drugs

Learning Outcomes: After studying this chapter, you should be able to:
1. describe the inflammatory process and identify sites where drugs interrupt inflammation.
2. identify situations in which it is appropriate to select a nonopioid drug for pain relief.
3. describe the advantage of selecting acetaminophen over aspirin.
4. explain why nonopioid analgesics are particularly effective against inflammation.
5. describe the primary side effects associated with long-term aspirin and antiinflammatory drug use.
6. explain why probenecid, febuxostat, and colchicine are specifically useful in the treatment of gout.

Assignments:
1. Chapter 19 Reading (p.268-285)
2. Chapter 20 Reading (p.292-314)
3. Week 16 Quiz
4. Week 16 Participation and Journal Entry

Week 17 Final Week (Dec. 15-19)
Exam 7 (Chapter 19, 20, 41 and 45) is due on Dec.18, Thursday, at 11:59 pm.
**Course Communication Plan**

The key to success for our online course is keeping in close communication. Therefore, please feel free to contact me whenever you have questions or concerns. I will try my best to get back to you as soon as possible, usually within 12 hours. You can reach me by email at m-chen2@wiu.edu.

Online virtual office hours: In order to foster a sense of community, I will be available via online chat, either video or voice, by Skype (Skype account: mlchen1000) on Thursday and Friday from 8:00 P.M. to 9:00 P.M CST. I will set up a group in Skype so students will have a chance to participate in a group chat and to interact with other classmates. I will post the discussion topic in each week’s folder. You can focus more on the topic and think about relevant issues in advance so you can actively participate the group discussion weekly.

**My expectations for your participation in online communication:**

1). You are required to participate in the group chat during at least one of my online virtual office hours each week.

2). After the group chat, you are required to participate our weekly discussion, and post them in our course discussion forum. You’re also welcome to command on other classmates’ responses. The submission of your discussion is due on Saturday at 11:30 P.M. The weekly online virtual group chat participation and discussion will be counted as a part of your total grade points.

I will monitor your online communications. If there is inappropriate content, I will contact you and also remove the post from our course forum.

All your online course materials and relevant website links will be posted on the Western Online in weekly folders. The deadline for your quiz and Discussion submission is always on Saturday, 11:59 pm. For quizzes, you have two attempts, The higher one will be counted as your grade. Please see the course schedule (p. 16-18) for the details of the weekly topics and schedules for quizzes and examinations.
Performance and Grading Scale

This course is graded as letter grades: A, A-, B+, B, B-, C+, C, C-, D+, D, D- and F. The corresponding grade scale is based on the total grade points earned from examinations, quizzes, weekly virtual online chat participation and your journal entry.

Seven exams (each worth 100 points), fifteen quizzes (each worth 10 points) will be given. Exams and quizzes will be multiple-choice/or matching question format.

**Exams:** Exams will be posted in Western Online. You have only ONE attempt for each exam.

**Quizzes:** Quizzes will be posted in Western Online. You have two attempts for each quiz. The highest grade will be counted.

**Methods of Assessment of Performance:**

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<thead>
<tr>
<th>Method</th>
<th>Points</th>
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<tr>
<td>7 Exams</td>
<td>700 pts</td>
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<tr>
<td>15 Quizzes</td>
<td>150 pts</td>
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<tr>
<td>Weekly Participation and Discussion</td>
<td>150 pts</td>
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<tr>
<td><strong>Total possible</strong></td>
<td><strong>1000 pts</strong></td>
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**Grading Scale:** Grades are assigned based on total points achieved after the final exam scores have been posted:

<table>
<thead>
<tr>
<th>Total points</th>
<th>Grade</th>
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<tbody>
<tr>
<td>≥ 900 (90%)</td>
<td>A</td>
</tr>
<tr>
<td>≤ 870 &lt; 899 points (87%-89.9%)</td>
<td>A-</td>
</tr>
<tr>
<td>≤ 840 &lt; 869 points (84%-86.9%)</td>
<td>B+</td>
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<tr>
<td>≤ 810 &lt; 839 points (81%-83.9%)</td>
<td>B</td>
</tr>
<tr>
<td>≤ 780 &lt; 809 points (78%-80.9%)</td>
<td>B-</td>
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<tr>
<td>≤ 750 &lt; 779 points (75%-77.9%)</td>
<td>C+</td>
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<tr>
<td>≤ 720 &lt; 749 points (72%-74.9%)</td>
<td>C</td>
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<tr>
<td>≤ 690 &lt; 719 points (69%-71.9%)</td>
<td>C-</td>
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<tr>
<td>≤ 660 &lt; 689 points (66%-68.9%)</td>
<td>D+</td>
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<td>≤ 630 &lt; 659 points (63%-65.9%)</td>
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<td>≤ 600 &lt; 629 points (60%-62.9%)</td>
<td>D-</td>
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<td>≤ 599 points</td>
<td>F</td>
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Exam grades are based on the total number of correct answers, and all grades are final. No curve will be applied to exam grades, and no “retakes” will be allowed. No “extra point” assignments will be made or applied to grades. Students can view their weekly grade on Western Online (WIU ECom is required for login).
Course Policies

No incomplete will be given to a student with a failing grade in the course. No incomplete will be given in this course unless the student experiences a documented emergency or long term illness that takes him/her away from the online course for at least two consecutive weeks. The student must notify the instructor of their special situations.

You are expected to finish your quizzes, examinations, and discussion by your own. Any student convicted of academic dishonesty, (including plagiarism) may receive a failing grade and may be subject to further academic penalties, such as possible expulsion from the university. (See academic dishonesty policy http://www.wiu.edu/policies/acintegrity.shtml.)

WIU Disability Policies: It is the policy of Western Illinois University to accommodate individuals with disabilities pursuant to federal law and the University's commitment to equal educational opportunities. It is the responsibility of the student to inform the instructor of any necessary accommodations at the beginning of the course. Any student with a disability requiring accommodations should contact the Office of Disability Support Services at 298-2512 for additional services.

In accordance with University policy and the Americans with Disabilities Act (ADA), academic accommodations may be made for any student who notifies the instructor of the need for an accommodation. It is imperative that you take the initiative to bring such needs to the instructor’s attention, as he/she is not legally permitted to inquire about such particular needs of students.

Please find the web address for Student Rights and Responsibilities: http://www.wiu.edu/provost/students/ph

IMPORTANT DATES:

First Day of Class Mon. Aug. 25, 2014
Thanksgiving Mon-Fri, Nov. 24-28, 2014
Final Week Mon-Fri, Dec.15-19, 2014
<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Chapter</th>
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<tbody>
<tr>
<td>1</td>
<td>Pharmacology: An Introduction</td>
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<tr>
<td></td>
<td>Pharmacokinetics and Factors of Individual Variation</td>
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<td>*Quiz 1 (Chapter 1 and 2), Discussion and Journal Entry are due on Aug. 30, Saturday, at 11:30 pm</td>
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<td>2</td>
<td>Geriatric Pharmacology</td>
<td>3</td>
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<td>Math Review and Dosage Calculations</td>
<td>4</td>
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<td>*Quiz 2 (Chapter 3 and 4) and Discussion are due on Sept. 6, Saturday, at 11:30 pm</td>
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<td>*Exam 1 (Chapter 1-4) is due on Sept. 7, Sunday, at 11:30 pm</td>
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<td>3</td>
<td>Introduction to the autonomic Nervous System</td>
<td>5</td>
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<td></td>
<td>Drugs Affecting the Sympathetic Division</td>
<td>6</td>
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<tr>
<td></td>
<td>*Quiz 3 (Chapter 5 and 6) and Discussion are due on Sept. 13, Saturday, at 11:30 pm</td>
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<td>4</td>
<td>Drugs Affecting the Parasympathetic Division</td>
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<td>Drug Affecting the autonomic Ganglia</td>
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<td>Skeletal muscle relaxants</td>
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<td>*Quiz 4 (Chapter 7-9) and Discussion are due on Sept. 20, Saturday, at 11:30 pm</td>
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<td>*Exam 2 (Chapter 5-9) is due on Sept. 21, Sunday, at 11:30 pm</td>
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<td>5</td>
<td>Review of Cardiac Physiology and Pathology</td>
<td>21</td>
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<td>Treatment of Heart failure</td>
<td>22</td>
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<td>*Quiz 5 (Chapter 21-22) and Discussion are due on Sept. 27, Saturday, at 11:30 pm</td>
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<td>6</td>
<td>Antiarrhythmic Drugs</td>
<td>23</td>
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<td>Antianginal Drugs</td>
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<td>*Quiz 6 (Chapter 23-24) and Discussion are due on Oct. 4, Saturday, at 11:30 pm</td>
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<td>*Exam 3 (Chapter 21-24) is due on Oct. 5, Sunday, at 11:30 pm</td>
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<tr>
<td>7</td>
<td>Diuretics</td>
<td>25</td>
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<td>Antihypertensive Drugs</td>
<td>26</td>
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<td></td>
<td>*Quiz 7 (Chapter 25-26) and Discussion are due on Oct. 11, Saturday, at 11:30 pm</td>
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<tr>
<td>Week 8</td>
<td>Anticoagulants and Coagulants</td>
<td>27</td>
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<tr>
<td>(10/13-10/19)</td>
<td>Hypolipidemic Drugs</td>
<td>29</td>
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*Quiz 8 (Chapter 27 and 29) and Discussion are due on Oct. 18, Saturday, at 11:30 pm.

*Exam 4 (Chapter 25, 26, 27 and 29) is due on Oct. 19, Sunday, at 11:30 pm.

<table>
<thead>
<tr>
<th>Week 9</th>
<th>Introduction to the Central Nervous System</th>
<th>11</th>
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<tbody>
<tr>
<td>(10/20-10/26)</td>
<td>Sedative-Hypnotic Drug and Alcohol</td>
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*Quiz 9 (Chapter 11 and 12) and Discussion are due on Oct. 25, Saturday, at 11:30 pm.

<table>
<thead>
<tr>
<th>Week 10</th>
<th>Antipsychotic and antianxiety Drugs</th>
<th>13</th>
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<tr>
<td>(10/27-11/2)</td>
<td>Antidepressants, psychomotor Stimulants and Lithium</td>
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*Quiz 10 (Chapter 13 and 14) and Discussion are due on Nov. 1, Saturday, at 11:30 pm.

<table>
<thead>
<tr>
<th>Week 11</th>
<th>Psychotomimetic Drugs of abuse</th>
<th>15</th>
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<tr>
<td>(11/03-11/09)</td>
<td>Antiepileptic Drugs</td>
<td>16</td>
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<td>Antiparkinson Drugs</td>
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*Quiz 11 (Chapter 15 -17) and Discussion are due on Nov. 8, Saturday, at 11:30 pm.

*Exam 5 (Chapter11-17) is due on Nov. 9, Sunday, at 11:30 pm.

<table>
<thead>
<tr>
<th>Week 12</th>
<th>Introduction to Endocrine System</th>
<th>35</th>
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<tr>
<td>(11/10-11/16)</td>
<td>Gonadal Hormone, Oral Contraceptives, and Erectile Dysfunction Drugs</td>
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</table>

*Quiz 12 (Chapter 35 and 37) and Discussion are due on Nov. 15, Saturday, at 11:30 pm.

<table>
<thead>
<tr>
<th>Week 13</th>
<th>Drugs Affecting The Thyroid and Parathyroid Glands and Bone Degeneration</th>
<th>38</th>
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<tr>
<td>(11/17-11/23)</td>
<td>Pancreatic hormones and antidiabetic Drugs</td>
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</table>

*Quiz 13 (Chapter 38 - 39) and Discussion are due on Nov. 22, Saturday, at 11:30 pm.

*Exam 6 (Chapter 35, 37, 38-39) is due on Nov. 23, Sunday, at 11:30 pm.

Week 14 (11/24-11/30) Thanksgiving Break
<table>
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<tr>
<th>Week 15</th>
<th>topic</th>
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<tr>
<td>(12/01-12/07)</td>
<td>Antibacterial Agents</td>
<td>41</td>
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<td>Antineoplastic Agents</td>
<td>45</td>
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<td>*Quiz 14 (Chapter 41 and 45) and Discussion are due on Dec. 6, Saturday, at 11:30 pm.</td>
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<th>Week 16</th>
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<tr>
<td>(12/08-12/14)</td>
<td>Opioid Analgesics</td>
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<td>Nonopioid Analgesics, Nonsteroidal Antiinflammatories, and Antigout Drugs</td>
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<td>*Quiz 15 (Chapter 19 - 20) and Discussion are due on Dec. 13, Saturday, at 11:30 pm.</td>
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<th>Week 17</th>
<th>topic</th>
<th>Chapter</th>
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<td>(Dec. 15-19)</td>
<td>Final Week</td>
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<td>* Exam 7 (Chapter 19, 20, 41 and 45) is due on Dec.18, Thursday, at 11:30 pm.</td>
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THIS SYLLABUS IS SUBJECT TO CHANGE UPON NOTIFICATION BY INSTRUCTOR.