Course Number and Title: PTH 509: Introduction to Pharmacology

Number of Credits: 2 Credit Hours

Day/Time: Tuesdays, 6:00-7:50 p.m.
Center for Graduate Studies LL14

Wednesdays, 9:00-10:50 a.m.
Center for Graduate Studies LL14

Prerequisites: Good standing in the Physical Therapy Program

Faculty:
Jaime Treichel, Ph.D.
jtreiche@carrollu.edu
262-719-0028

General Medicine Track Mission Statement
The aim of the general medicine track is to produce an entry-level generalist clinician who is competent in anatomical and physiological detail of major body systems at rest and during exercise, general pathophysiology underlying disease processes of these systems and treatment rationale, and proficient in evidence based examination, evaluation, and management of persons with acute or chronic medical and/or surgical conditions.

Course Description: Introduction to Pharmacology will explore the pharmacological basis of therapeutics at a basic science level. The course will draw upon an integration of many disciplines including physiology, cell biology and chemistry to approach drug therapy as an integrative science. The course will focus on understanding basic pharmacological principles as they apply to mechanisms of action and physiological effects of medications. The goal of the course is to provide a direct understanding of basic pharmacology that will facilitate application of physical therapy to the whole patient.

Required Textbook: Pharmacology in Rehabilitation, Charles D. Ciccone

Course Policies:
Accommodation for Disabilities – Students with disabilities who may need accommodations or any student considering obtaining documents should make an appointment with the Walter Young Center (262-524-7621) no later than the first week of class.

Carroll University emphasizes that students have an obligation to conduct their academic work with honesty and integrity. All acts of misconduct are serious. If you have any questions about appropriate citations, please ask.

Class Policies - Class policies regarding attendance, assignments, academic standards, and general conduct are in accord with those outlined in the “Entry-Level Master of Physical Therapy Student Handbook”.

The instructors and the University reserve the right to modify, amend or change the syllabus (course requirements, grading policy, etc.) as the curriculum and/or program require(s).

Course Objectives:
Upon completion of the course, students will:
1. Describe pharmacology at a basic level, including factors influencing drug absorption, distribution, metabolism, and excretion.
2. Summarize the basic effects of medications on patients and discuss the effectiveness of the pharmacological intervention.
3. Analyze appropriate pharmacological interventions and health care needs across the lifespan.
4. Label the major classification of pharmacological agents based on the system they target or effect they produce.
5. Describe mechanism of action and anticipated side effects by identifying the general classification of the drug.
6. Explain the effects of various drugs on motor and cognitive function.
7. Discuss the role patient compliance has on ultimate therapy and medication management.
8. Characterize medication management in the context of physical therapy evaluation and intervention.
9. Value that drug therapy is unique to the individual and the importance of evaluating a patient and their drug regimen as separate from set standards.

Links between course student learning outcomes/objectives and the Entry-level Physical Therapy Program goals can be reviewed within the document entitled “Curriculum Matrix” found on the LMS site for the Carroll University DPT Program.

Course Assessment:
Quizzes: 20%
Assignment: 10%
Exam #1: 30%
Exam #2: 40%

Course Format: Lecture/Discussion/Small Groups

Grading Scale:
<table>
<thead>
<tr>
<th>Letter</th>
<th>Numerical Scale</th>
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<tbody>
<tr>
<td>A</td>
<td>90-100</td>
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<td>B</td>
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<td>D</td>
<td>60-69</td>
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<td>F</td>
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Course Requirements:
Exams:
Quizzes and exams will be used to assess the student’s ability to synthesize material and demonstrate knowledge.

Absence from quizzes and exams will NOT be made up unless just cause is demonstrated. The quizzes will consist of true/false, matching and multiple choice. The examinations will consist of fill in the blank, matching, short answer, true/false and multiple choice.

Assignments:
An assignment entailing the utilization of reliable internet sources to access information on pharmacological preparations in combination with physical therapy techniques will be detailed in a separate handout. The assignment is due Wednesday October 11th. All assignments turned in after the due date will be reduced in grade by 10%.

Course Schedule

<table>
<thead>
<tr>
<th>Lecture 1:</th>
<th>Introduction to Pharmacology</th>
<th>Notes</th>
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<tbody>
<tr>
<td>9/12-T</td>
<td>(Chapters 1-4)</td>
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<tr>
<td></td>
<td>• Basic Pharmacology Language</td>
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<td>• Pharmacokinetics/Pharmacodynamics</td>
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<td>• Dose-Response Relationships</td>
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<td>• Introduction to Basic Receptor Pharmacology</td>
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<tr>
<th>Lecture 2:</th>
<th>Pain and Inflammation</th>
<th>Notes</th>
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<tr>
<td>9/13-W</td>
<td>(Chapters 14-17)</td>
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<tr>
<td></td>
<td>• NSAIDS/Coricosteroids</td>
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<td>• Histamine</td>
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<td>• Opioids</td>
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<td>• Inflammation (antirheumatics, gout)</td>
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<tr>
<th>Lecture 3:</th>
<th>Autonomic Nervous System</th>
<th>Quiz #1</th>
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<tbody>
<tr>
<td>9/19-T</td>
<td>Renal Pharmacology</td>
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<td>(Chapters 18-20)</td>
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<td>• Physiology of the Peripheral Nervous System</td>
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<td>• Autonomic Receptors and Distribution</td>
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<td>• Cholinergic Drugs</td>
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<td>• Adrenergic Agonists and Antagonists</td>
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<tr>
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<td>• Cholinergic Drugs</td>
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<td></td>
<td>• Introduction to the Kidney and Diuretics</td>
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Lecture 4: Cardiovascular Pharmacology  
9/20-W  (Chapters 21-25)
- Review Autonomic Nervous System/Renal Pharmacology
- Basic Introduction to the Heart and Heart Function
- Renin-Angiotensin System
- Calcium Channel Blockers
- Vasodilators
- Introduction to Hypertension and Antihypertensives
- Congestive Heart Failure and Cardiac Glycosides
- Antiarrhythmics
- Antihyperlipidemic Agents
- Antianginals
- Anticoagulants and Thrombolytic Agents
- Myocardial Infarction

Lecture 5: Respiratory and Gastrointestinal Pharmacology  
9/26-T  (Chapters 26-27)  
Exam #1
- Treatment of Asthma
- Peptic Ulcer Agents
- Inflammatory Bowel Disease
- Diarrhea and Vomiting
- Constipation

Lecture 6: Central Nervous System Pharmacology I  
9/27-W  (Chapters 5-7, 9)
- CNS Organization
- Anxiolytics
- Sedatives/Hypnotics
- Antidepressants
- Anticonvulsants

Lecture 7: Central Nervous System Pharmacology II  
10/3-T  (Chapters 8 & 10)  
Quiz #2
- CNS Diseases
- Antipsychotics
- Stimulants
- Drugs of Abuse
### Lecture 8: General and Local Anesthetics Muscle Relaxants and Endocrine Pharmacology & Toxicology (Chapters 11-13, 28-32)

- General Anesthetics (Intravenous and Inhalation)
- Local Anesthetics
- Skeletal Muscle Relaxants
- Introduction to Endocrinology
- Adrenocorticosteroids
- Male and Female Hormones
- Thyroid and Parathyroid Agents
- Treatment of Diabetes
- Pharmacological Toxicology

### Lecture 9: Vitamins and Supplements (Chapters 38)

#### Quiz #3

- General Supplements
- Weight Loss Supplements
- Vitamins
- Minerals
- Prohibited Drugs

### 10/11-W Assignment Due

- Resources on Pharmacological Preparations
- Combining PT Techniques with Pharmacology

### 10/17-T Fall Break

### Lecture 10: Therapy of Infectious Diseases (Chapters 33-37)

- Antibacterials
- Antimycobacterials
- Antiparasitics
- Antifungals
- Antiviral
- Antineoplastics

### 10/24-T Exam #2