Pharmacology 203   General Pharmacology
3 credits CRN 62413 (face-to-face section)
TR: 10:00 a.m. – 11:15 a.m.
Hale ‘Imiloa 133

INSTRUCTOR: Allison Beale
OFFICE: Office hours in classroom, 1 hour before class
OFFICE HOURS: Before class, 9:00 a.m. – 10:00 a.m.
TELEPHONE: Please use email
EMAIL: abeale@hawaii.edu
EFFECTIVE DATE: Spring 2013

WINDWARD COMMUNITY COLLEGE MISSION STATEMENT

Windward Community College offers innovative programs in the arts and sciences and opportunities to gain knowledge and understanding of Hawai‘i and its unique heritage. With a special commitment to support the access and educational needs of Native Hawaiians, we provide O‘ahu’s Ko‘olau region and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.

CATALOG DESCRIPTION

Covers a wide range of drugs with emphasis on sites and mechanism of action, toxicity, fate and uses of major therapeutic agents.

This course is intended for students in nursing and allied health fields.

Prerequisites: Grade of "C" or better in ZOOL 141 and ZOOL 142.

Recommended Preparation: College level chemistry.

Activities Required at Scheduled Times Other Than Class Times

1. Self study
2. Extra credit

STUDENT LEARNING OUTCOMES

The student learning outcomes for the course are:

1. Describe the basic mechanisms of drug action.
2. Demonstrate knowledge of the terminology and special concepts useful in the study of pharmacology.
3. Describe how differences between individuals govern their response to drugs.
4. Define how drugs are processed and biotransformed by the body.
5. Identify frequent complications and side effects associated with the major drug classes.
6. Describe significant interactions between drugs
7. Use information from the pharmacokinetics of a specific drug to determine dosing schedules and best route of drug administration.
8. State the therapeutic uses for each major drug group.
Additionally, WCC recognizes four General Education Learning Objectives, that are fully achieved only by completing a variety of courses. PHRM 203 strives to fulfill outcomes related to the following General Education Learning Objectives.

1. Critical Thinking and Creativity
2. Communication
3. Information Literacy

### COURSE CONTENT

#### Concepts or Topics

- Pharmacokinetics
- Pharmacodynamics
- Drug discovery and development
- Regulatory controls
- Drug label information
- Drug hazard warnings
- Uses and abuses of pharmaceuticals
- Medication errors
- Patient education

#### Skills or Competencies

1. Identify the use of a given drug
2. Identify warnings for a given drug
3. Pronounce generic names covered in class
4. Recognize stems and what they mean
5. Identify the class of a given drug
6. List & explain variables affecting therapeutics
7. Conduct an online search for drug label information

### Sample Terminology used in PHRM 203

(This is not intended to be complete; it comes from the Acronyms and Abbreviations handout that will be part of your lecture notes. You will receive a PHRM Glossary as well).

- A
  - Absorption, distribution, metabolism and excretion
- Acetaminophen
- Acetyl Choline
- Acetyl Cholinesterase
- Acquired immunodeficiency syndrome
- Acute lymphoblastic leukemia
- Acute myeloid anemia
- Adenosine Triphosphate
- Adrenergocorticotrophic hormone
- Adverse Drug Reaction
- Agonist
- Aluminum ion
- Alzheimer’s Disease
- Angiotensin converting enzyme
- Angiotensin converting enzyme inhibitor
- Angiotensin Receptor Blocker
- Antagonist
- Anti-epileptic Drug
- Antidiuretic hormone
- Antinuclear antibody/factor
- Atrial fibrillation
- Atrial ventricular node
- Attention deficit hypersensitivity disorder
- Autonomic Nervous System
- B
  - Benign Prostatic Hypertrophy
  - Benzodiazepine
  - Bile Acid Sequestrant
  - Blood Brain Barrier
- Blood Pressure
- Blood Urea Nitrogen
- Boxed warning
- Bradycardia
- Buccal
- C
  - C-Reactive protein
  - Calcium channel blocker
  - Calcium ion
  - Carbapenem Resistant Enterobacteria
- Carbapenem-resistant Klebsiella pneumonia
- Carbohydrate
- Cardiovascular
- Central nervous system
- Cerebrospinal fluid
- Cerebrovascular accident
- Chemoreceptor trigger zone
- Chemotherapy-induced nausea and vomiting
- Chlorine ion
- Chronic heart failure
- Chronic obstructive pulmonary disease
- Chronic renal failure
- Clostridium difficile associated diarrhea
- Coronary artery disease
- Cyclic adenosine monophosphate
- Cyclooxygenase
- Cytochrome P-450
- Cytomegalovirus
- D
  - Deep vein thrombosis
  - Diabetes insipidus
  - Diabetes mellitus
  - Diagnosis
  - Dipetidyl peptidase
  - Disseminated intravascular coagulation
- Dopamine
- Drug Enforcement Administration (www.DEA.gov)
- E
  - Electrocardiogram
  - Electroencephalogram
  - Enzyme-linked immunosorbent assay
  - Enzyme-linked receptor
  - Epinephrine
  - Epstein-Barr virus
  - Erectile dysfunction
  - Extrapyramidal symptoms
- F
  - Follicle stimulating hormone
  - Food and Drug Administration (www.fda.gov)
- Fusion inhibitor
- G
  - G-Protein Coupled Receptor
  - Gamma amino butyric acid
  - Gastro-esophageal reflux disease
  - Gastrointestinal tract
- Glomerular filtration rate
1. Lecture – attendance is mandatory.
2. Classroom discussions – be prepared to answer questions based on lecture material.
3. Classroom activities – may include pronunciation drills of drug names.
4. Self-study – assigned reading must be completed before class.
5. Research (library/on-line) projects
6. Quizzes and Examinations – complete daily quiz at start of class as well as midterms and a final exam.

EXAMINATIONS

Quizzes will be worth 10-20 points each. Total value is approximately 250 points.
The midterm exam will be worth up to 400 points. The final exam will be worth up to 800 points.

The total for all examinations will be approximately 1000 points.

The quizzes will be an assessment of the student’s ability to recall material from the previous reading assignment and lecture. The exams will require the student to demonstrate knowledge and understanding of information and concepts presented in lecture, reading assignments, classroom activities, worksheets and other handouts, as well as information presented from internet resources.

There may be up to eight (8) extra credit opportunities worth up to 20 points each. Extra credit opportunities may be unannounced and you must be in attendance to participate. At least one extra credit opportunity will be held during the pre-lecture review session. There is no “make up” or “late” work accepted for the extra credit assignments.

**Examples of potential extra credit opportunities:**
1. Reading an assigned topic and completing a questionnaire.
2. Pronunciation of drug (generic) names.
3. Listening to an assigned recorded interview and writing a summary.

**ATTENDANCE**

Attendance to the lectures is expected and required. Once lecture starts, common courtesy dictates that you remain seated until the end of class. If it is impossible for you to remain seated for a medical reason, please communicate with me so we can respectfully accommodate your need without undo disturbance to others.

Students who are more than 15 minutes late for, or who leave early from class will be counted as absent. This includes leaving for any unexcused reason during lecture, *even if you return*. Any student absent two (2) or more unexcused times will be required to meet with the instructor to discuss a course of action to avoid a potential 10% reduction in final points. Absenteeism may result in a student being asked to withdraw from the course.

**METHOD OF GRADING**

**GRADING SCALE**

<table>
<thead>
<tr>
<th>Total points</th>
<th>Percentage</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>900-1000</td>
<td>90-100</td>
<td>A</td>
</tr>
<tr>
<td>800-899</td>
<td>80-89.9</td>
<td>B</td>
</tr>
<tr>
<td>700-799</td>
<td>70-79.9</td>
<td>C</td>
</tr>
<tr>
<td>600-699</td>
<td>60-69.9</td>
<td>D</td>
</tr>
<tr>
<td>599 or below</td>
<td>59 OR BELOW</td>
<td>F</td>
</tr>
</tbody>
</table>

Grades may be curved or calculated based on a percentage at the instructor’s discretion; however, the student may use the above grading scale as a guide to evaluate their performance throughout the class. If you miss an examination because of an illness or legitimate emergency, you must contact the instructor *within 48 hours* to arrange a time to take a make-up exam. The instructor may request that the student present evidence of the illness or emergency that caused the student to miss the exam. If the student misses an exam for any other reason, the student may be prohibited from taking a make-up exam, thus failing to receive any points for the missed exam. While make-up exams will cover the same content area as a missed exam, the exam format and specific questions may be different. **No retests will be given for any reason. Quizzes may not be retaken, taken late or made up.**

Make up exams will be given at the Library Resource Center or the WCC Testing Center by arrangement. You will need a photo id in order to take the exam.

**ACADEMIC DISHONESTY**

*Students involved in academic dishonesty will receive an "F" grade for the course.*

Academic dishonesty includes cheating on exams and plagiarism. See pages 20-21 of the 2010-2011 course catalog for a description of the University’s policies concerning academic dishonesty.
LEARNING RESOURCES

Required: a 3-ring binder (preferably 3”, but 2.5” will suffice).

   This text is available:
   1. At the WCC bookstore
   2. Online, at Pearson’s website a hard cover text or eText

   This text is available:
   1. At the WCC bookstore
   2. Online, at Pearson’s website a hard cover text or eText

Lecture notes (copies of PowerPoint presentation slides) will be provided.

Online flash cards are available at StudyBlue http://www.studyblue.com/#. To use, go to http://s.tudy.it/tw23frp join and use the class code 284977 to access the cards. Either link should take you to their website.

Additional Information

STUDENT RESPONSIBILITIES

The student is expected to attend lectures, participate in all course activities, and complete all quizzes, examinations and course assignments on time (no late work accepted). Please be considerate to other students by turning off, or silencing, any cell phones or beepers during class. Likewise, show consideration by not getting up during class for any reason.

Any changes in the course schedule, such as lecture order, examination dates, deadlines, etc., will be announced ahead of time in class or on the course website (in Laulima). It is the student's responsibility to be informed of these changes. It is also the student's responsibility to be informed about deadlines critical to making registration changes (e.g., last day for making an official withdrawal).

HOW TO SUCCEED IN THIS CLASS

Although you will be given lecture outlines, you will not succeed in this class without attending lecture and taking detailed notes. Science courses at WCC generally require a minimum of two to three hours of independent study time for each hour in class. It is your responsibility to allocate the appropriate amount of time needed for study and be realistic about all personal and professional commitments that may cut into your study time.

As part of your studies, you will need to understand a veritable mountain of medical and anatomical terms, most of which will probably be foreign to you (e.g., cholinergic receptors, agonists and antagonists, hyperlipidemia, and post-synaptic potential). One way to learn these vocabulary words is to make flash cards to quiz your self. Hard copies of flashcards and online versions of PHRM 203 flashcards are available for your use, too. These are to learn the drug names, uses, and warnings. You will have handouts listing important abbreviations used in class.

Answering the “SLO Review” questions located at the end of each lecture can be a helpful way to learn new vocabulary and concepts. Be warned: Merely knowing the definitions of vocabulary words or the names of drugs will be of little use if you do not know the pharmacology. This means, that in addition to vocabulary, you will be expected to have a firm understanding of the basic physiological mechanisms regulating drug pharmacokinetics and pharmacodynamics.
Instead of an “office hour,” you will have the opportunity to attend review sessions, in the hour immediately before class, during which drills will be conducted to help memorize the generic and trade names of drugs covered in the previous lecture(s) as well as drug class, boxed warnings, indications and adverse reactions. The answers to the study questions at the end of each lecture and the study questions that are provided for the midterm and final will be reviewed during these sessions. If you have questions, this will be the time during which we can tackle issues that are unclear in depth. There may be spontaneous drills to help with your ability to associate information from various lectures. There may also be board notes to help clarify physiological or pharmacological principles in the upcoming lecture. **It is strongly recommended that you allocate sufficient time to attend these sessions. This is a structured study hour that has proven very helpful to the students who attend.**

**DISABILITIES ACCOMMODATION STATEMENT**

*If you have a physical, sensory, health, cognitive, or mental health disability that could limit your ability to fully participate in this class, you are encouraged to contact the Disability Specialist Counselor to discuss reasonable accommodations that will help you succeed in this class. Ann Lemke can be reached at 235-7448, lemke@hawaii.edu, or you may stop by Hale 'Akoakoa 213 for more information.*
GENERAL LECTURE SCHEDULE (SUBJECT TO CHANGE)

Drug lists are included with each lecture, starting in the 4th week with the PNS lecture. “Week” indicates actual instructional weeks and does not account for holidays; lecture order may change.

<table>
<thead>
<tr>
<th>Section</th>
<th>Week</th>
<th>Lecture</th>
<th>Chapter in text</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction and Background</strong></td>
<td>1.</td>
<td>Introduction</td>
<td>• Chapter 1 (Intro)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Chapter 2 (Drug Regulations)</td>
</tr>
<tr>
<td></td>
<td>2.</td>
<td>Therapeutics</td>
<td>• Chapter 6 (ADRs)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Chapter 7 (Medication Errors)</td>
</tr>
<tr>
<td><strong>Nervous System</strong></td>
<td>3.</td>
<td>CNS Basics &amp; Neurotransmitters</td>
<td>• Chapter 16</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Chapter 21</td>
</tr>
<tr>
<td></td>
<td>4.</td>
<td>Peripheral Nervous System</td>
<td>• Chapters 17 &amp; 18 for cholinergic lecture</td>
</tr>
<tr>
<td></td>
<td>5.</td>
<td>Autocoids</td>
<td>• Chapters 19 &amp; 20 for adrenergic lecture</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pain and Inflammation</td>
<td>• Chapter 29 (Severe Pain &amp; Migraines) for Opioids</td>
</tr>
<tr>
<td></td>
<td>6.</td>
<td>Sedatives Hypnotics, Antidepressants, Antipsychotics</td>
<td>• Chapter 44 (Pharmacology of Inflammation &amp; fever) for non-opioids.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Anesthetics</td>
<td>• Chapter 30 (Anesthetics)</td>
</tr>
<tr>
<td><strong>Endocrine</strong></td>
<td>7.</td>
<td>Neurodegenerative Diseases</td>
<td>• Chapters 25-28</td>
</tr>
<tr>
<td></td>
<td>8.</td>
<td>Endocrine</td>
<td>• Chapter 67, 68 &amp; 70-72 for 1st lecture</td>
</tr>
<tr>
<td><strong>Cardiovascular</strong></td>
<td>9.</td>
<td>CV1: Hypertension</td>
<td>• Chapter 69 (Diabetes mellitus) for 2nd lecture.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CV2: Angina</td>
<td>• Chapter 31, 34-37 (scan, read as needed)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CV3: Lipids</td>
<td>• Chapter 33, 38 &amp; 39</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Chapter 32, 40-42.</td>
</tr>
<tr>
<td><strong>Antimicrobials</strong></td>
<td>11.</td>
<td>Micro1: Bacterial basics, UTIs,</td>
<td>• Chapters 49 &amp; 53</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BPH, Acne</td>
<td>• Chapter 51</td>
</tr>
<tr>
<td></td>
<td>12.</td>
<td>Micro 2: Protein Synthesis Inhibitors</td>
<td>• Chapter 51</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Micro 3: Cell wall synthesis inhibitors</td>
<td>• Chapter 50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Micro 4: Quinolones, Antiprotozoals</td>
<td>• Chapters 52 &amp; 56</td>
</tr>
<tr>
<td></td>
<td>13.</td>
<td>Micro 5: Antiparasitics, Antifungals</td>
<td>• Chapters 55 &amp; 56</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>14.</td>
<td>Respiratory Tract Drugs</td>
<td>• Chapters 47 &amp; 48</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Antivirals</td>
<td>• Chapters 57 &amp; 58</td>
</tr>
<tr>
<td></td>
<td>15.</td>
<td>Gastrointestinal Drugs</td>
<td>• Chapters 61 - 63</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cancer</td>
<td>• Chapters 59 &amp; 60</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Herbs, Supplements &amp; Vitamins</td>
<td>• Chapters 15 &amp; 64</td>
</tr>
</tbody>
</table>

You will be provided with a calendar that identifies dates of lectures, due dates for extra credit assignments and other assorted information pertinent to class. None-the-less, all schedules for this class are subject to change. Make sure to frequently check your UH email, or the Laulima website for PHRM 203, for announcements.

Updated on 4 January, 2013