BIOL C200: PHARMACOLOGY

Item	Value
Curriculum Committee Approval Date	05/19/2000
Top Code	040100 - Biology, General
Units	3 Total Units
Hours	54 Total Hours (Lecture Hours 54)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S), • Pass/No Pass (B)

Course Description

This course, designed for students entering graduate health care programs, covers the basic principles of pharmacology; classification of drugs, methods, and routes of administration, distribution, absorption, excretion; desired and toxic effects; indication and contraindication for use. PREREQUISITE: BIOL C225. ADVISORY: CHEM C110 or CHEM C180; eligibility for ENGL C1000. Transfer Credit: CSU. C-ID: HIT 107 X.**C-ID:** HIT 107 X.

Course Level Student Learning Outcome(s)

1. Describe in detail basic principles of pharmacology including pharmacokinetics.
2. Examine in detail scientific classifications of drugs and analyze the basis for rational therapeutics.
3. Identify typical drugs applied to common pathologies, body system disorders, and clinical procedures.

Course Objectives

- 1. Describe general concepts of how medical drugs work
- 2. Describe the classification of medical drugs
- 3. Determine which drug classes work best for pathological conditions
- 4. Identify the most common medical drugs used for the most common pathological conditions

Lecture Content

Principles of Pharmacology Rational therapeutics Routes of drug administration Drug absorption, distribution, metabolism, excretion and clearance Drug actions at the cellular, organism and population levels Tolerance, dependence and withdrawal Patient profile in relation to drug choices Peripheral Nervous System Sympathomimetics – 1) Action and function of neurotransmitters; 2) Drug classifications and agonistic/antagonistic actions; 3) Reversal of drug actions Cholinomimetics – 1) Action and function of neurotransmitters; 2) Drug classifications and agonistic/antagonistic actions; 3) Reversal of drug actions Neuromuscular agents – 1) Neuromuscular transmission and blockade; 2) Reversal of blockade Local anesthetics Central Nervous System Brain neurotransmitters (excitatory and inhibitory; and receptors) Anxiolytics Anti-depressants (clinical depression and bi-polar disease) Neuroleptics/Anti-psychotics (schizophrenia and psychosis) Anticonvulsants Psychomotor stimulants, anti-emetics, opioids General anesthesia agents and strategy (“Balanced Anesthesia”) Cardiovascular Drugs Heart failure drugs Anti-hypertensives Anti-anginal agents Anti-arrhythmic agents Lipid lowering drugs Anticoagulants, anti-thrombotics and thrombolytics Hematopoietic agents Respiratory Drugs Obstructive lung disease Respiratory distress syndrome Gastrointestinal Agents Anti-ulcer drugs, gastro-esophageal disease drugs Anti-diahrreals and drugs used to treat constipation Anti-infective Agents and Treatment Strategies Basic stra tegies of antimicrobial therapy and antibiotics Classes of anti-bacterial drugs Anti–mycobacteria agents Anti-viral agents Anti-fungal agents Anti- protozoan and helminth agents Vaccines Anti-cancer Agents and Treatment Strategies Classic principles of cancer chemotherapy Classifications of classical anti-cancer agents Newer anti-cancer agents and strategies Anti-inflammatory and Immunologic Agents Non-steroidal inflammatory agents Anti-histamines Corticosteroids Immunomodulating agents Endocrinologic Agents Overview of hormonal agents Drugs used to treat Type I and Type II diabetes Contraceptives Other specific agent applications as appropriate Drug Development Commercial pharmaceutical development Clinical involvement in drug development (research, institutional review boards, clinical trials, post-market surveillance, ethics) Government regulation Drug schedules Prescription legal requirements

Method(s) of Instruction

- Lecture (02)
- DE Online Lecture (02X)

Instructional Techniques

Lecture, discussions, PowerPoints, videos

Reading Assignments

Reading assignments including textbook and internet sources

Writing Assignments

Essay and short answer

Out-of-class Assignments

Assignments regarding pharmaceutical package inserts

Demonstration of Critical Thinking

Comparing and contrasting different drug categories and their mechanisms of action.

Required Writing, Problem Solving, Skills Demonstration

Essays, short answers to questions.

Eligible Disciplines

Biological sciences: Masters degree in any biological science OR bachelors degree in any biological science AND masters degree in biochemistry, biophysics, or marine science OR the equivalent. Masters degree required.

Textbooks Resources

1. Required Olson, J. Clinical Pharmacology Made Ridiculously Simple, 5th ed. 978-1935660378: MedMaster Inc, 2019

Other Resources

1. Assignments selected from current journals and pharmaceutical industry news magazines, as well as the Food and Drug Administration (FDA) and Center for Disease Control (CDC) web sites. 2. Coastline Library