**Course Description**

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| **Faculty** | **Pharmacy** |
| **Department**  | **Clinical Pharmacy** | **Level** |  |
| **Course**  | Pharmacology I | **Code** | **1702328** | **Prerequisite** | 1702252 |
| **Credit hours** | 3 | **Theoretical**  | 3 | **Practical** | 0 |
| **Coordinator** | Dr. Ahmed Youssef | **Email** |  |
| **Teachers** |  | **Emails** |  |
| **Lecture Time** |  | **Place** |  | **Attendance mode** |  |
| **Semester**  |  | **Preparation date**  |  | **Modification Date** |  |

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|  **Abstracted Course Description**  |
| Pharmacology I covers introduction to pharmacology; principle of pharmacodynamics and pharmacokinetics; types of drug-receptor interactions; drug affecting the autonomic nervous system; and drug affecting the cardiovascular diseases (hypertension, heart failure, angina, atherosclerosis, arrhythmia, and hyperlipidemia), in addition to drugs for asthma managements |
| **Course Goals** |
| * Enable students to grasp the basic principles of drug action, including pharmacodynamics and brief pharmacokinetics.
* Ensure students are acquainted with generic names of key drugs in each discussed class.
* Cover the mechanism of pharmacologic action, therapeutic uses, adverse effects, precautions, and contraindications for a comprehensive understanding.
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| **CILOs** |
| **Knowledge** |
| A.1 Understand general principles of pharmacodynamics and pharmacokinetics. A.2 Know how to distinguish drug groups that are used to treat cardiovascular diseaseA.3 Know how to distinguish drug groups that are used for autonomic nervous system |
| **Skills** |
| B.1 Use standard pharmacological definitions, terminology, and approved abbreviations.B.2 Interpret the mechanism of action, actions, therapeutic use, and adverse effects of selected drugs.B.3 Illustrate the clinical features of the cardiovascular diseases efficiently.. |
| **Competencies** |
| C.1 Evaluate the clinical outcomes of the drugs.C.2 Explain drug actions, contraindication, mechanism of action, and side effectsC.3 Information analysis and understanding |
| **Learning Methods** |
| * Lecture material and notes ,Homework and Assignments, Projects, Presentation,
 |
| **Evaluation Tools** |
| Exams,Presentation, project, assignments. |
| **Week** | **Topics** | **Learning methods** | **Evaluation tool** | **ILOs** | **Hours** |
| **1.** | Introduction to Pharmacology and Brief Pharmacokinetic Concepts1. Absorption
2. Distribution
3. Metabolism
4. Elimination
 | Lecture material and notes | ExamsAssignments, | **A1,a2,b1,b2,c1** | **6** |
| **2.** |
| **3.** | **Drug–Receptor****Interactions and Pharmacodynamics*** Agonists
* Antagonists
* Potency
* Efficacy

Therapeutic index | Lecture material and notes Homework and Assignments, Projects, Presentation, … | Exams | **A2,a3,b1,b3,c2,c3** | **6** |
| **4.** |
| **5.** | **The Autonomic Nervous physiology**1. Cholinergic Receptors
2. Cholinergic Neurotransmitters
3. Adrenergic Receptors

Adrenergic Neurotransmitters | Lecture material and notes  | Exams | **A2,a3,b1,b3,c2,c3** | **3** |
| **6.** | **Cholinergic Agonists**1. Direct-acting cholinergic agonists

Indirect-acting cholinergic agonists | Lecture material and notes  | Exams | **A1,a2,b1,b2,c1** | **3** |
| **7.** | **Cholinergic Antagonists**1. Antimuscarinic agents
2. Ganglionic blockers

Neuromuscular blockers | Homework and Assignments, Projects, Presentation, … | Exams | **A2,a3,b1,b3,c2,c3** | **3** |
| **8.** | **Adrenergic agonists**1. Direct-acting agents
2. Indirect-acting agents
3. Direct and indirect acting
 | Lecture material and notes  | Exams | **A1,a2,b1,b2,c1** | **3** |
| **9.** | **Adrenergic antagonists**1. Alpha blockers
2. Beta blockers
3. Drugs affecting neurotransmitter uptake or release
 | Lecture material and notes  | Exams | **A1,a2,b1,b2,c1** | **3** |
| **10.** | **Drugs for Hypertension**1. Diuretics
2. Angiotensin Converting Enzyme Inhibitors
3. Angiotensin Receptor 2 blockers
4. Renin Inhibitor
5. Calcium Channel Blockers
6. Beta blockers
7. Alpha blockers
8. Direct Vasodilators
 | Lecture material and notes | Exams | **A2,a3,b1,b3,c2,c3** | **3** |
| **11.** | **Drugs Used for Heart Failure**1. Direct Vasodilators
2. Inotropic Agents
3. Phosphodiesterase inhibitors
 | Lecture material and notes | Exams | **,A1,a2,a3,b1,b2,c1,b3,c2,c3** | **3** |
| **12.** | **Drugs Used For Angina**1. Nitrates
2. Sodium Channel Blockers
3. Calcium Channel Blockers
4. Beta blockers

**Drugs Used for Atherosclerosis*** Anticoagulants
1. Platelets inhibitors
2. Thrombolytic Agents
 | Lecture material and notes | ExamsPresentation, project, assignments | **A2,a3,b1,b3,c2,c3** | **3** |
| **13.** | **Drugs Used for Arrhythmias**1. Class I (Na+ Channel Blockers)
2. Class II (Beta Adrenoceptor Blockers)
3. Class III ( K channel Blockers)
4. Class IV (Calcium Channel Blockers)
5. Others (Adenosine, Digoxin, Magnesium sulphate)
 | Lecture material and notes | Presentation, project, assignments | **A2,a3,b1,b3,c2,c3** | **3** |
| **14.** | **Drugs Used for Hyperlipidemias**1. Statins
2. Niacin
3. Fibrates
4. Bile Acid Sequestrates
5. Cholesterol Absorption Inhibitors
6. Omega 3

**Drugs Used for Asthma**1. Corticosteroids
2. Beta 2 Agonist
3. Cholinergic Antagonist
4. Leukotrienes modifiers
5. Mast cell stabilizers
6. Theophylline
 | Lecture material and notes | Presentation, project, assignments | **A2,a3,b1,b3,c2,c3** | **3** |
| **15.** | **Final exam** |  |
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| **Plan of Course Evaluation** |
| **Evaluation Tools** | **Mark** | **ILOs** |
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| **First Exam (Mid-term)**  | **30%** | A1,A2,A3 | B1.B2,B3C1 |  |  |  |  |
| **Second Exam (If available)** |  |  |  |  |  |  |  |
| **Final Exam** | **50%** | A1,A2,A3 | C2,C3A1C1 |  |  |  |  |
| **Activities** |  |  |
| **Activities Evaluation** | Homework/Tasks | 10% |  | B1.B2,B3C1 |  |  |  |  |
| Case Study  |  |  |  |  |  |  |  |
| Discussion and Interactions |  |  |  |  |  |  |  |
| Group Activities |  |  |  |  |  |  |  |
| Laboratory Exams |  |  |  |  |  |  |  |
| Presentations |  |  |  |  |  |  |  |
| Quizzes | 10% | A1,A2,A3 | C2,C3A1 |  |  |  |  |
| Others |  |  |  |  |  |  |  |
| **Total** | 100% |  |  |  |  |  |  |

 **Components**  |
| **Book** | **Pharmacology Lippincott's illustrated reviews, 6th edition (2015) by Karen Whalen.** |
| **References** | **1. Basic & Clinical Pharmacology, Katzung. 13 Edition****2. Clinical Pharmacology & Therapeutics. Ritter JM, Lewis LD, Mant T, Ferro5th edition, 2008****3. Clinical Pharmacology. Bennet BN and Brown MJ, 10th edition, 2008****4. Goodman & Gilman's the pharmacological basis of therapeutics - 11th ed. (2006).****5. Pharmacology. Rang & Dale's, 6th edition, 2007** |
| **Recommended Readings** |  |
| **Electronic materials** |  |
| **Other websites** |  |

**Subject Coordinator:**

**Head of Curriculum Committee:**

**Department Head:**

**Faculty Dean:**

**Last update date:**