**Course Description**

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| **Faculty** | **Pharmacy** |
| **Department**  | Pharmaceutical chemistry | **Level** | 5th year |
| **Course**  | Medicinal chemistry 3 | **Code** | **1703406** | **Prerequisite** | 1703326 |
| **Credit hours** | 3 | **Theoretical**  |  | **Practical** |  |
| **Coordinator** |  | **Email** |  |
| **Teachers** |  | **Emails** |  |
| **Lecture Time** |  | **Place** |  | **Attendance mode** |  |
| **Semester**  |  | **Preparation date**  |  | **Modification Date** |  |

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|  **Abstracted Course Description**  |
|  This course covers different drug classes including antibacterial, antiviral, antineoplastic, steroids and hormones. For each drug class mentioned, drug-target, chemical structure and properties, structure-activity relationships, metabolism, and therapeutic uses are discussed |
| **Course Goals** |
| 1. • Recognize the drugs affecting different targets or receptors.
2. • Identify the categories of certain classes of drugs and their effects.
3. • Apply the knowledge from prerequisite courses.
4. • Recognize the relation between molecules for design of certain synthetic leads.
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| **CILOs** |
| **Knowledge** |
| A1.Discuss the structure activity relationships (SAR) that control the pharmacokinetics and pharmacodynamics of significant fraction of clinically applicable for chemotherapeutic agentsA2.Predict qualitatively pharmacokinetic and pharmacodynamic properties of various chemotherapeutic agents from molecular structures.A3. Locate, analyze and evaluate information from a wide variety of sources in a planned and timely manner.A4. Apply both independently and cooperatively to apply effective, creative and innovative solutions to solve current and future problems.A5. Understand Skills in interpersonal, teamwork and communication |
| **Skills** |
| B1. Predict the methods of synthesis and properties of medicinal agents and their relation to molecular structure by applying the principles of bio ‐ informatics and computer aided tools in drug design.B2. Apply qualitative and quantitative analytical methods for identification, quality control and assay of raw materials as well as pharmaceutical preparations.B3. Apply information and propose approaches for monitoring and design of medicinal agents of different sources. |
| **Competencies** |
| C1. Predict metabolites, oral bioavailability and effect of adding small SAR changesC2. Utilize organic chemistry and physical pharmacy in predicting behavior of organic molecules inside the human physiology.C3. Relate pharmacology topics to MOA and current drugs |
| **Learning Methods** |
| * Lectures and Discussions, Homework and Assignments, Projects, Presentation, …
 |
| **Evaluation Tools** |
| Exams, oral discussions, Quiz, presentation, project, assignments |
| **Week** | **Topics** | **Learning methods** | **Evaluation tool** | **ILOs** | **Hours** |
| **1.** | Disinfectants and Antiseptics | Lectures | Exams, | **A1,a2,b1,b2,c1** | **3** |
| **2.** | Urinary tract antiseptics  | Lectures | Exams, | **A1,a2,b1,b2,c1** | **3** |
| **3.** | Synthetic antibacterial agents / Anthelmintics  | Lectures and Discussions, Homework and Assignments, Projects, Presentation | Exams, | **A2,a3,b1,b3,c2,c3** | **3** |
| **4.** | Antifungal agents  | Lectures and Assignments, Projects, Presentation | , presentation, project, assignments | **A1,a2,b1,b2,c1** | **3** |
| **5.** | Antiprotozoal Antibiotics  | Exams | **A2,a3,b1,b3,c2,c3** | **3** |
| **6.** | Antimalarials Antibiotics  | Exams | **A1,a2,b1,b2,c1** | **3** |
| **7.** | Antibacterial Sulfonamides  | Exams | **A2,a3,b1,b3,c2,c3** | **3** |
| **8.** | Antibiotics | Exams | **A1,a2,b1,b2,c1** | **3** |
| **9.** | Antibiotics | , presentation, project, assignments | **A1,a2,b1,b2,c1** | **3** |
| **10.** | Antibiotics | Exams | **A2,a3,b1,b3,c2,c3** | **3** |
| **11.** | Antiviral agents | Exams | **,A1,a2,a3,b1,b2,c1,b3,c2,c3** | **3** |
| **12.** | Antiviral agents | Exams | **A2,a3,b1,b3,c2,c3** | **3** |
| **13.** | Antineoplastics, anticancer or cytostatics | Exams | **A1,a2,b1,b2,c1** | **3** |
| **14.** | Antineoplastics, anticancer or cytostatics | , presentation, project, assignments | **,A1,a2,a3,b1,b2,c1,b3,c2,c3** | **3** |
| **15.** | Final Exams |  |

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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,b3,b4 |  |  |  |  |
| **Second Exam (If available)** |  |  |  |  |  |  |  |
| **Final Exam** | 50% | **,A1,a2,a3,b1,b2,c1,b3,c2,c3** |  |  |  |  |  |
| **Activities** | **20%** |  |
| **Activities Evaluation** | Homework/Tasks | 10% | C1,c2,c3 |  |  |  |  |  |
| Case Study  |  |  |  |  |  |  |  |
| Discussion and Interactions |  |  |  |  |  |  |  |
| Group Activities |  |  |  |  |  |  |  |
| Laboratory Exams |  |  |  |  |  |  |  |
| Presentations |  |  |  |  |  |  |  |
| Quizzes | 10% | A4,a5 |  |  |  |  |  |
| Others |  |  |  |  |  |  |  |
| **Total** | 100% | **,A1,a2,a3,b1,b2,c1,b3,c2,c3** |  |  |  |  |  |

 **Components**  |
| **Book** | Foye's Principles of Medicinal Chemistry, David A Williams, William O Foye and Thomas L Lemke, 6th Edition, 2008, Lippincott Williams & WilkinsWilson and Gisvold's Textbook of Organic, Medicinal and Pharmaceutical Chemistry, 11th Edition, 2004, Lippincott Williams & Wilkins |
| **References** | Burger's Medicinal Chemistry and Drug Discovery, Drug Discovery and Drug Development Wiley-Interscience; 6th edition Introduction to Medicinal Chemistry, Graham Patrick**,** 3rd edition, 2005, Oxford University Press |
| **Recommended Readings** |  |
| **Electronic materials** |  |
| **Other websites** |  |

**Subject Coordinator:**

**Head of Curriculum Committee:**

**Department Head:**

**Faculty Dean:**

**Last update date:**