**Course Description**

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| **Faculty** | **Pharmacy** | | | | | | |
| **Department** | 1702- clinical pharmacy | | | **Level** | | | 7 |
| **Course** | Pharmaceutical organic Chemistry | **Code** | **1703105** | **Prerequisite** | | | 0303101 |
| **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** |
| The course provides the pharmacy students with the basics of organic chemistry. Organic chemistry for pharmacy is primarily a lecture and problem-solving course which is aiming to prepare the student for other courses such as pharmaceutical organic chemistry, biochemistry, medicinal chemistry, and phytochemistry. The following topics will be covered in this course: Alkanes, cycloalkanes, isomers, stereochemistry, alkenes, alkynes; aromatic compounds; alkyl halides; alcohols; ethers; addition; substitution; elimination reactions; Carboxylic acid and carboxylic acid derivatives; aldehyde; ketones. |
| **Course Goals** |
| 1. Provide the students with the basic Knowledge about structures, properties, and nomenclatures of organic compounds for each functional group. 2. Provide the students with the basic Knowledge about mechanistic theory (the mechanism for each organic reaction). 3. Provide the students with the basic Knowledge about synthesis and reactions. 4. Provide the students with the methods for problem solving in organic synthesis.   Provide the students with the basic Knowledge how to planning for synthesize organic compounds |

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| **CILOs** | | | | | | |
| **Knowledge** | | | | | | |
| a1. Know how to write the correct name for an organic compound using the modern Nomenclature (IUPAC and common) system and drawing the structures of organic compounds  a2. Know How to predict the physical and chemical properties of organic compounds  a3. Know How to arrange a list of organic compounds according to reactivity towards a particular reagent or acidity and basicity. | | | | | | |
| **Skills** | | | | | | |
| b1. Identify the organic functional group to any organic compound. b2. predict the reactivity of organic compounds towards a particular reagent and their acidity and basicity.  b3. Design an original synthesis for any molecule given to them complete with following the shortest pathway.  . | | | | | | |
| **Competencies** | | | | | | |
| c1. To write the name and draw the structure of any organic compound.  c2. To represent the chemical reaction by balanced chemical equation showing starting materials, products and reagents used  c3. working in groups to solve some problems in organic synthesis by the student then presenting the result in front of the class followed by discussion. | | | | | | |
| **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.** | An Introduction to Organic Compounds: Nomenclature, Physical Properties, and Representation of Structure | Lecture material and notes | Exams, | **A2,a3,b1,b3,c2,c3** | **6** |
| **2.** |
| **3.** | Isomers: The Arrangement of Atoms in Space | Lecture material and notes | project, assignments | **A1,a2,b1,b2,c1** | **6** |
| **4.** |
| **5.** | Alkenes: Structure, Nomenclature, and an Introduction to Reactivity. Thermodynamics and Kinetics | Lecture material and notes | Exams, | **A1,a2,b1,b2,c1** | **3** |
| **6.** | The Reactions of Alkenes: The Stereochemistry of Addition Reactions. | Projects, Presentation | Exams, | **A1,a2,b1,b2,c1** | **3** |
| **7.** | The Reactions of Alkynes. An Introduction to Multistep Synthesis. | Projects, Presentation | Exams, | **A1,a2,b1,b2,c1** | **3** |
| **8.** | Substitution Reactions of Alkyl Halides | Lecture material and notes | project, assignments | **A2,a3,b1,b3,c2,c3** | **3** |
| **9.** | Elimination Reactions of Alkyl Halides. Competition Between Substitution and Elimination | Projects, Presentation | Exams, | **A2,a3,b1,b3,c2,c3** | **3** |
| **10.** | Reactions of Alcohols, Ethers, Epoxides, Amines, and Thiols | Lecture material and notes | Exams, | **A2,a3,b1,b3,c2,c3** | **3** |
| **11.** | Reactions of Carboxylic Acids and Carboxylic Derivatives | Projects, Presentation | Exams, |  | **3** |
| **12.** | Carbonyl Compounds I: Reactions of Aldehydes and Ketones More Reactions of Carboxylic acid Derivatives, Reactions of α,β-Unsaturated Compounds | Lecture material and notes | project, assignments | **A1,a2,b1,b2,c1** | **3** |
| **13.** | Aromaticity and Benzene Chemistry | Projects, Presentation | Exams, |  | **6** |
| **14.** |
| **15.** | **Final Exam** | | | |  |  | | **A1,a2,b1,b2,c1** |
| **16.** |  |  |  |  |  |

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| |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Plan of Course Evaluation** | | | | | | | | | | **Evaluation Tools** | | **Mark** | **ILOs** | | | | | | |  |  |  |  |  |  | | **First Exam (Mid-term)** | | **30%** | **A1,a2,a3,b1,b2,c1,b3,c2,c3** |  |  |  |  |  | | **Second Exam (If available)** | |  |  |  |  |  |  |  | | **Final Exam** | | **50%** | **A1,a2,a3,b1,b2,c1,b3,c2,c3** |  |  |  |  |  | | **Activities** | |  |  | | | | | | | **Activities Evaluation** | Homework/Tasks | 10% | **A1,a2,b1,b2,c1** |  |  |  |  |  | | Case Study |  |  |  |  |  |  |  | | Discussion and Interactions |  |  |  |  |  |  |  | | Group Activities |  |  |  |  |  |  |  | | Laboratory Exams |  |  |  |  |  |  |  | | Presentations |  |  |  |  |  |  |  | | Quizzes | 10% | **A1,a2,b1,b2,c1** |  |  |  |  |  | | Others |  |  |  |  |  |  |  | | **Total** | | 100% | **A1,a2,a3,b1,b2,c1,b3,c2,c3** |  |  |  |  |  |   **Components** | |
| **Book** | Textbook: Organic Chemistry, Seventh Edition, by Paula Yurkanis Bruice |
| **References** | * Organic Chemistry, John McMurry, 7th Edition, 2008   + Organic Chemistry by Morrison & Boyd, 6th Edition |
| **Recommended Readings** |  |
| **Electronic materials** |  |
| **Other websites** |  |

**Subject Coordinator:**

**Head of Curriculum Committee:**

**Department Head:**

**Faculty Dean:**

**Last update date:**