

**Department of ……Food Technology**

**College of …Agriculture**

**University of ……Salahaddin**

**Subject: …Organic Chemistry**

**Course Outline– 1st*year-2nd semester***

**Lecturer's name- Nawroz Omer Muhemmed**

**Academic Year: 2022/2023**

**Course Book**

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| **1. Course name** | Organic chemistry |
| **2. Lecturer in charge** | Nawroz omer muhemmed |
| **3. Department/ College** | Food technology  |
| **4. Contact** | **e-mail: nawroz.bawaji@su.edu.krd****Tel: (optional)** |
| **5. Time (in hours) per week**  |  **Theory: 2** **Practice : 3**  |
| **6. Office hours** | **Availability of the lecturer to the student during the week** 6  |
| **7. Course code** |   |
| **8. Teacher's academic profile**  |  **PROFESSIONAL EXPERIENCES****\*** 1- B. Sc. In chemistry science/science college – Univer.of sallahadin in 19902- M. Sc. In Organic Chemistry science/science college – Univer. of Salahhadin in 1999 **Thesis title** *(Synthesis and Spectroscopic Studies of some Coumarin -3-Carboxylic Acid Compounds by Ultrasonic Promoted Knoevenagel Reaction)***Undergraduate Students** 1. Organic Chemistry 2. Biochemistry  3. Physical Chemistry 4. Inorganic chemistry 5. Analytic chemistry  **Sciential degrees**1- Scientific Researcher 2- Assistant Lecturer 1999-20113- Lecturer 2011-2022**Scientific and Office works**There isn’t any office work **Supervised and Researches** \* Published more than 7 scientific researches in several scientific Journals  \* Supervised on more than 23 research projects at the end stage of undergraduate student.**The Conferences Contrib** 1. The first international scientific conference of Cihan University – Erbil, May, 20-21, 2014.2. The 5th international scientific conference of Eshik university – Erbil April 13-14, 2014 3. 2nd Scientific conference of garmian university 6,7 -2015**Periods**1-Preperation period for assistant Lab., M.Sc. students & M.Sc. teachers chemists deals with the chemical Safety & security in Agriculture College for all Depts in Salahadin Univer. 15/9/2012 for two weeks..2- Preperation period for assistant Lab., M.Sc. students & M.Sc. teachers chemists deals with the **chemical Safety & security** in Agriculture College for all Depts in Salahadin Univer/Hawler. 15/9/2014 for two weeks.**Committees**1- Contributed as a member of elevation scientific degree committee in college of Agriculture departs/Univer. of Salahadin- Hawler to determine scientific grade in no.352 at10/11/2014. . |
| **9. Keywords** | This course is a natural continuation of a course in organic chemistry, but the material is more focused. The basic goal is to establish a connection between different families of organic compounds through their activities inequalities and feasible region. Some topics are hydrocarbon compounds like alkanes ,alkenes, & alkynes, besides to the cycloalkane & aromatic compounds,with their preparation & chemical reactions, also some knowledge about alcohol, ketone, aldehydes & carboxylic acides .  |
| **10.**  The more general objective of this course is to continue providing a deeper understanding and working knowledge of organic chemistry, while in the process strengthening analytical skills increasing student’s ability to communicate organic compounds structurally and orally, making them comfortable with reading and understanding different organic compounds on their own and continuing to develop their appreciation for abstract organic chemistry.  |
| **11. Course objective:** The topics listed in the syllabi will be covered in the lectures. The students will be asked to study all topics in the lectures at home. To get the best of the course it is suggested that the students attend classes as much as possible. Lectures note, are for supporting not for submitting the reading material try as much as possible to participate in classroom preparing the assignments given in the course. |
| **12. Student's obligation:**Students role is very crucial in this course. They need to spend some time in solving and understanding the main concepts.  |
| **13. Forms of teaching**We will use datashow & the board in this course. The board is an old fashioned method of teaching the chemical structure of organic compounds, and followed in most of well known universities. |
| **14. Assessment scheme**1. Two tests (2 x 3%). 2% for active participation and attendance. for 20% of the term mark the annual striving in25% theory .2. Final examination 60%( 40% theory & 20% practice). 3. If the student couldn't secure a minimum of 50% for the term and final examination to pass the course, they are given a chance to repeat the final examination in September**.**‌ |
| **15. Student learning outcome:**The students will learn some concepts in this new field of organics. It will be useful once the pursue a postgraduate degree |
| **16. Course Reading List and References‌:*** Morrison and Boyd, Organic Chemistry,4 th. Alyn and Bacon,Inc.(1984).
* R.O. Norman, Principles of Organic synthesis , Methuen & Co Ltd and Science Paperbacks 1972.
* Francis A.Carey,org.chemistry sixth.Ed. (2006)
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| **17. The Topics:** | **Lecturer's name** |
| In this section the lecturer shall write titles of all topics he/she is going to give during the term. This also includes a brief description of the objectives of each topic, date and time of the lecture Each term should include not less than 16 weeks  | Lecturer's name 3 hrs.  |
| **18. Practical Topics (If there is any)** |  |
| In this section The lecturer shall write titles of all practical topics he/she is going to give during the term. This also includes a brief description of the objectives of each topic, date and time of the lecture  | Lecturer's name 3-4 hrs   |
| **19. Examinations:**The exams will be a combination of solving problems and explaining certain ideas of the course* Quizzes 5%.
* Examinations will be given, 20%.
* Final exam 60%.
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| **20. Extra notes:**None |
| **21. Peer review پێداچوونه و هه ول ‌** .‌‌  |

 **Syllabus of organic chemistry**

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| **No.** | **Title of the subject** |
|  **Week 1**  | Org.Chem. definition ,electronic configurationof carbon atom , orbital bonding in molecules, lonic bond, covalent bond & polar bond ,molecular orbital bonding formation of H2 gas . |
| **Week 2** | Hybridization of orbitals ,sp ,sp2 , sp3 , classification of organic compounds, Hydrocarbons structural & molecular formula,homologeous series. |
| **Week 3** | Functional groups , structural isomerism , alkanes general information,physical properties |
| **Week 4** | Preparation of alkanes , alkane reactions , cyclic alkanes , HCs & cycloalkane solvents |
| **Week 5** | Nomenclature , preparation of cyclic alkanes , petroleum , composition , fractional distillation , octane number & its improvementes. |
| **Week** 6 | Alkenes Nomenclature ,Natural source ,preparation / dehydration of alcohol , carbonium ion stability, dehydrohalogenation of alkyl halides. |
| **Week** 7 | Reaction of double bond/ addition reaction , catalytic hydrogenatio , halogenation addition ,markonikov,s rule, peroxide effiect. Ozonolysis, polymerization, geometrical isomerism , alkynes , nomenclature  |
| **Week** 8 | Examination + discussion. |
| **Week** 9 | Preparation, hydrogenation , reaction of alkylhalide with acetylide ,triple bond reaction: hydrogenation & halogenations |
| **Week** 10 |  Addition reaction of water, combustion , tautomerism , aromatic hydrocarbons |
| **Week** 11**Week** 12**Week** 13**Week** 14**Week** 15 | Resonance ,electrophylic aromatic substitution reaction,halogenations , nitration & sulfonation.Friedel-craft,s reactions , halides , nomenclature , Halide reactions,SN1 & SN2 reactions.Elimination reactions E1 & E2 , aldehydes & ketones , nomenclature and their physical and chemical propertiesCarboxylic acides physical properties & chemical reactions .Examination + discussion. |

Patterns of questions