

توصيف مساق Chem 403712

1. معلومات مدرس المساق (Instructor)

Yaseen Ahmad Al-Soud	اسم (مدرس / منسق) المساق :
1.00-4.00 Tus	الساعات المكتتية :
2118	رقم المكتب والرقم الفرعي :
alsoud@aabu.edu.joi	البريد الالكتروني :
NA	مساعد البحث والتدريس/المشرف/الفني (إن وجد):

2. وصف المساق (Course Description)

This course will focus on a deeper understanding of the structure and reactivity of organic molecules with an emphasis on reaction mechanisms. Covering advanced electrophilic substitution and cycloaddition reactions.

3. بيانات المساق (Course Title)

المستوى: Level 2	اسم المساق: Advanced Organic Chemistry II	رقم المساق: 403712
وقت المحاضرة: 1:00-4:00	المتطلب السابق Chem 403711	طبيعة المساق: نظري
عدد الساعات الدراسية: 3	الفصل الدراسي: 1 st	العام الجامعي: 2020 / 2021

4. أهداف المساق (Course Objectives)

To better understand structure and reactivity of organic molecules. Though vast numbers of reactions are known, most fall into a small number of mechanistic classes. We will focus on these most common reactive intermediates and how knowledge of the stereoelectronic interactions that govern the behavior of these reactive intermediates leads to predictable understanding of the way molecules behave—what rules of engagement are possible when molecules encounter one another and react. Working reaction mechanisms are the key exercise that we will use to develop and advance our understanding of structure and reactivity.	أ-
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5. مخرجات التعلم (Intended Student Learning Outcomes)
(المعرفة والمهارات والكفايات)

Upon completing this course, students are expected to know:

- Mechanisms of the major chemical reactions
- Independently plan and conduct advanced syntheses
- Functional groups interconversions
- Use of reagents/ catalysts needed for organic transformation
- Synthesis of complex organic molecules

1. محتوى المساق (Course Content)

الموضوع	الأسبوع
Chapter 1: Electrophilic Additions to Carbon-Carbon Multiple Bonds Electrophilic Addition to Alkenes, Electrophilic Cyclization, Electrophilic Substitution to Carbonyl Groups, Additions to Allenes and Alkynes, Addition at Double Bonds via Organoborane Intermediates, Hydroalumination, Carboalumination, Hydrozirconation, and Related Reactions, Reactions of Carbon Nucleophiles with Carbonyl Compounds	الأول-الرابع
Chapter 2: Reactions of Carbon Nucleophiles with Carbonyl Compounds Aldol Addition and Condensation Reactions, Addition Reactions of Imines and Iminium Ions, Acylation of Carbon Nucleophiles, . Olefination Reactions of Stabilized Carbon Nucleophiles, 2.5. Reactions Proceeding by Addition-Cyclization, Conjugate Addition by Carbon Nucleophiles	الخامس - الثامن
Chapter 3 Concerted Cycloadditions, Unimolecular Rearrangements, and Thermal Eliminations Diels-Alder Reactions, 1,3-Dipolar Cycloaddition Reactions, [2 + 2] Cycloadditions and Related Reactions Leading to Cyclobutanes, [3,3]-Sigmatropic Rearrangements, [2,3]-Sigmatropic Rearrangements, Unimolecular Thermal Elimination Reactions	التاسع – الثاني عشر
Med Term Exam (week 11)	
Chapter 4: Aromatic Substitution Reactions Electrophilic Aromatic Substitution, Nucleophilic Aromatic Substitution, Transition Metal–Catalyzed Aromatic Substitution Reactions, Aromatic Substitution Reactions Involving Radical Intermediates.	الثالث عشر-الخامس عشر
Final Exam (week 16; All material covered)	

9. استراتيجيات التعليم والتعلم وطرق التقويم
(Teaching and learning Strategies and Evaluation Methods)

ت	مخرجات التعلم	استراتيجيات التدريس	أنشطة التعلم	نوع التقويم/القياس

(امتحان/عروض صفية/مناقشة/واجبات)				
- Examination	<ul style="list-style-type: none"> Suggested problems from each text book chapter. Give students critical thinking questions Solving problems in groups Encourage peer discussion and offer one to one discussion Developing self-study skills 	<ul style="list-style-type: none"> Encourage students to use computer technology and internet to get access to the course material. Link between theoretical and applied knowledge Encouraging group discussion related to the subject matter 	<ul style="list-style-type: none"> Understand the basic principles of organic chemistry. Be able to classify organic compounds into their functional groups and will have a broad understanding of their physical and chemical properties, synthesis, and characterization. Will discover the importance the organic compounds in our daily life. 	1

1. تقييم الطلبة (Assessment)

توزيع الدرجات لكل أسلوب	توقيت التقييم	الأساليب المستخدمة
30%	خلال الفصل	1-أعمال الفصل: (تقرير، وظائف، حضور)
30%	الأسبوع الحادي عشر	2-امتحان تحريري
40%	أسبوع الامتحانات النهائية	3-امتحان تحريري نهائي

2. الكتاب المقرر (Text Book)

Advanced Organic Chemistry, Part B (reactions and synthesis) 5th Ed. Carey and Sundberg.	المراجع الرئيس
FRANCIS A. CAREY and RICHARD J. SUNDBERG	المؤلف
Springer	الناشر
1999	السنة
5th Edition	الطبعة
<ul style="list-style-type: none"> ISBN-13: 978-0-387-68350-8 (hard cover) ISBN-13: 978-0-387-68354-6 (soft cover) e-ISBN-13: 978-0-387-44899-2 	الموقع الالكتروني للمرجع

3. المراجع الإضافية (References) (وتشمل الكتب والبحوث المنشورة في الدوريات او المواقع الالكترونية)

• MARCH'S ADVANCED: ORGANIC CHEMISTRY REACTIONS, MECHANISMS, AND STRUCTURE	-1
• Advanced Organic Chemistry, Part A: Structure and Mechanisms 5th Edition	-2
https://chemistlibrary.files.wordpress.com/2015/07/advanced-organicchemistry-4ed-2000-part-a-structure-and-mechanisms-carey-sundberg.pdf	-3