



Course Syllabus: Advanced Organic Chemistry II - ChemS 340

Division	Physical Science and Engineering Division
Course Number	ChemS 340
Course Title	Advanced Organic Chemistry II
Academic Semester	Spring
Academic Year	2017/2018
Semester Start Date	01/28/2018
Semester End Date	05/24/2018
Class Schedule (Days & Time)	10:30 AM - 12:00 PM Mon Thu

Instructor(s)				
Name	Email	Phone	Office Location	Office Hours
Nivine Mohammad Khachab	niveen.khashab@kaust.edu.sa	+966128082410	3277, 4, Al-Jazri (bldg. 4)	Monday and Thursday 12:00 - 1:00 pm or by appointment

Teaching Assistant(s)	
Name	Email

Course Information	
Comprehensive Course Description	This course covers reactivities of main organic moieties including enolates, carbenes, radicals, and carbonyl compounds. It also covers mechanisms of named reactions with emphasis on condensation, elimination, rearrangement, and cross coupling reactions. Retrosynthetic analysis will be discussed and practiced with training on proposal writing.
Course Description from Program Guide	Reactivity and reactions of organic moieties including enolates, carbenes, radicals, carbonyl compounds, and transition metal organometallics; mechanisms of named reactions; multistep total synthesis techniques and reactions; advanced NMR and mass spectrometric techniques as applied to research efforts in organic chemistry and related fields, such as pharmaceuticals, materials science, supramolecular synthesis, and crystal engineering.
Goals and Objectives	Upon completing this course, students are expected to know: <ul style="list-style-type: none"> -Functional groups interconversions -Mechanisms of the major chemical reactions -Use of reagents/ catalysts needed for organic transformation -Retrosynthetic analysis techniques for complex organic molecules synthesis such as natural products
Required Knowledge	Completed ChemS 320 Advanced Organic Chemistry 1

Reference Texts	<p>Required Text Advanced Organic Chemistry: Structure and Mechanisms (Part B) by Francis A. Carey and Richard J. Sundberg, 5th Edition, Springer</p> <p>Reference books and Resources</p> <ol style="list-style-type: none"> 1. March's Advanced Organic Chemistry: Reactions, Mechanisms, and Structure by Michael B. Smith and Jerry March, 6th Edition, Wiley 2. Comprehensive Organic Name Reactions and Reagents by Zerong Wang, Wiley 3. Modern Physical Organic Chemistry by Eric V. Anslyn (Author), Dennis A. Dougherty, University Science Books (publisher) 4. Student Solutions Manual To Accompany Modern Physical Organic Chemistry by Michael B. Sponsler, University Science Books (publisher) 5. The Art of Writing Reasonable Organic Reaction Mechanisms by Robert B. Grossman, Springer (2002) 6. Organic Synthesis: The Disconnection Approach by Stuart Warren, 2nd Edition, Wiley <p>Protective Groups in Organic Chemistry by P. G. M. Wuts and T. W. Greene, 4th Edition, Wiley</p>
Method of evaluation	<p>30.00% - Final exam 40.00% - Midterm exam 30.00% - Homework /Assignments</p>
Nature of the assignments	<p>Organic Synthesis and Mechanisms</p>
Course Policies	<p>Attendance Lecture attendance is mandatory and students are responsible for all information, material, and announcements made in class.</p> <p>Academic Honesty In accordance with university policy and professional standards, the highest levels of academic integrity are expected in this class. The code of student conduct will be strictly enforced. Academic dishonesty will result in reductions in grades and/or expulsion from this class and/or the university.</p>
Additional Information	

Tentative Course Schedule

(Time, topic/emphasis & resources)

Week	Lectures	Topic
1	Mon 01/29/2018	Enolate
1	Thu 02/01/2018	Enolate
2	Mon 02/05/2018	Enolate
2	Thu 02/08/2018	Oxidation Reactions
3	Mon 02/12/2018	Oxidation Reactions
3	Thu 02/15/2018	Reduction Reactions
4	Mon 02/19/2018	Functional Group Interconversions
4	Thu 02/22/2018	Functional Group Interconversions
5	Mon 02/26/2018	Functional Group Interconversions
5	Thu 03/01/2018	Presentation Named Reactions
6	Mon 03/05/2018	Presentation Named Reactions
6	Thu 03/08/2018	Presentation Named Reactions
7	Mon 03/12/2018	Midterm review
7	Thu 03/15/2018	Midterm Exam
8	Mon 03/19/2018	ACS Spring Meeting
8	Thu 03/22/2018	ACS Spring meeting
9	Mon 03/26/2018	Alkenes and Alkynes
9	Thu 03/29/2018	Alkenes and Alkynes
10	Mon 04/02/2018	Spring Break
10	Thu 04/05/2018	Spring Break
11	Mon 04/09/2018	Ring Construction Reactions
11	Thu 04/12/2018	Ring Construction Reactions
12	Mon 04/16/2018	Reterosynthetic Analysis
12	Thu 04/19/2018	Reterosynthetic Analysis
13	Mon 04/23/2018	Reterosynthetic Analysis
13	Thu 04/26/2018	Reterosynthetic Analysis
14	Mon 04/30/2018	Reterosynthetic Analysis
14	Thu 05/03/2018	Presentation Current Literature
15	Mon 05/07/2018	Presentation Current Literature
15	Thu 05/10/2018	Presentation Current Literature
16	Mon 05/14/2018	Presentation Current Literature
16	Thu 05/17/2018	Final Project Discussion
17	Mon 05/21/2018	Final Project Presentation
17	Thu 05/24/2018	Final Project Presentation

Note

The instructor reserves the right to make changes to this syllabus as necessary.