جامعة الملك عبدالله
للعلوم والتقنية
King Abdullah University of
Science and Technology

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	2018/2019
Semester Start Date	01/27/2019
Semester End Date	05/23/2019
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: -**Functional groups interconversions** -**Mechanisms of the major chemical reactions** -**Use of reagants/ calalysts 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	**Required Text** Advanced Organic Chemistry: Structure and Mechanisms (Part B) by Francis A. Carey and Richard J. Sundberg, 5th Edition, Springer **Reference books and Resources** 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 Protective Groups in Organic Chemistry by P. G. M. Wuts and T. W. Greene, 4th Edition, Wiley
Method of evaluation	**30.00**% - Course Project(s) **40.00**% - Midterm exam **30.00**% - Homework /Assignments
Nature of the assignments	Organic Synthesis and Mechanisms
Course Policies	**Attendance** Lecture attendance is mandatory and students are responsible for all information, material, and announcements made in class. **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.
Additional Information	

Tentative Course Schedule *(Time, topic/emphasis & resources)*		
Week	**Lectures**	**Topic**
1	Mon 01/28/2019	Enolates
1	Thu 01/31/2019	Enolates
2	Mon 02/04/2019	Enolates Reactions
2	Thu 02/07/2019	Enolates Reactions
3	Mon 02/11/2019	Functional Groups Interconversions
3	Thu 02/14/2019	Functional Groups Interconversions
4	Mon 02/18/2019	Oxidations
4	Thu 02/21/2019	Reductions
5	Mon 02/25/2019	Named reactions presentation
5	Thu 02/28/2019	Named reactions presentation
6	Mon 03/04/2019	Midterm Review
6	Thu 03/07/2019	Midterm
7	Mon 03/11/2019	Reterosynthesis
7	Thu 03/14/2019	Reterosynthesis
8	Mon 03/18/2019	Reterosynthesis
8	Thu 03/21/2019	Reterosynthesis
9	Mon 03/25/2019	Spring Break
9	Thu 03/28/2019	ACS conference
10	Mon 04/01/2019	ACS conference
10	Thu 04/04/2019	Ring Construction
11	Mon 04/08/2019	Ring Construction
11	Thu 04/11/2019	Ring Construction
12	Mon 04/15/2019	Class presentation
12	Thu 04/18/2019	Class presentation
13	Mon 04/22/2019	Cross coupling reactions
13	Thu 04/25/2019	Cross coupling reactions
14	Mon 04/29/2019	Cross coupling reactions
14	Thu 05/02/2019	Cross coupling reactions
15	Mon 05/06/2019	General Review
15	Thu 05/09/2019	General Review
16	Mon 05/13/2019	Final Presentation
16	Thu 05/16/2019	Final Presentation
17	Mon 05/20/2019	Final Exam Week
17	Thu 05/23/2019	Final Exam Week

Note

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