

# National Commission for Academic Accreditation & Assessment

## Course Specification

Institution King Khalid University
College/Department College Of Science / Chemistry Department

### A Course Identification and General Information

1. Course title and code: Organic Chemistry 3, Chem 313
2. Credit hours 2 hours
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) B.SC
4. Name of faculty member responsible for the course Prof. Dr. Ayman Mohamed Salah
5. Level/year at which this course is offered (5/3)
6. Pre-requisites for this course (if any) 213 Chem
7. Co-requisites for this course (if any)
8. Location if not on main campus

## B Objectives

<p>1. Summary of the main learning outcomes for students enrolled in the course.</p> <ul style="list-style-type: none"><li>● Study the organic compounds containing more than one function group in terms of naming and preparation methods and the physical and chemical properties and studying some mechanisms for some of these reactions.</li><li>● Study the physical and chemical properties of alicyclic organic compounds.</li><li>● Study the applications of some compounds.</li><li>● providing students with the skill how to convert certain organic compounds to other organic compounds</li></ul>
<p>2. Briefly describe any plans for developing and improving the course that are being implemented. (eg increased use of IT or web based reference material, changes in content as a result of new research in the field)</p> <ul style="list-style-type: none"><li>● Class lectures using board.</li><li>● Activation of more e-learning with this course by the University's website.</li><li>● Training on represented solved problems.</li><li>● Continuous development to keep the contents of this course updated with the results of modern scientific research.</li></ul>

## C. Course Description (Note: General description in the form to be used for the Bulletin or Handbook should be attached)

1 Topics to be Covered		
List of Topics	No of Weeks	Contact hours
Dicarboxylic acids and their Esters, Classification, Nomenclature, Synthesis , Chemical Reactions and applications.	2	4
Dihydric Alcohols, Nomenclature, Synthesis, Chemical Reactions and applications.	1	2
Dicarbonyl compounds,(Dialdehydes and Diketones) Classification , Nomenclature, Synthesis, Chemical Reactions and applications.	2	4
Hydroxy acids ,Classification, Nomenclature, Synthesis and Chemical Reactions	1	4
$\beta$ -Ketoesters and Malonic esters, Nomenclature , Synthesis and Chemical Reactions	1	2
1 <sup>st</sup> Midterm exam	1	1
Aldehydic and Ketonic Acids, Nomenclature , Synthesis and Chemical Reactions	1	2
Dienes and Unsaturated Alcohols, Nomenclature , Synthesis and Chemical Reactions	1	2
Unsaturated Aldehydes and $\alpha,\beta$ -Unsaturated Ketones , Nomenclature , Synthesis and Chemical Reactions	1	2
$\alpha,\beta$ - and $\beta,\gamma$ -Unsaturated Monocarboxylic acids and their Esters, Nomenclature , Synthesis and Chemical Reactions.	1	2

Diamines , , Nomenclature , Synthesis and Chemical Reactions and Application.	1	2
Amino Acids , Classification, Nomenclature, Synthesis and Applications.	1	2
2 <sup>nd</sup> Midterm exam	1	1
Chemistry of Alicyclic Compounds ,( Mono and Di Cyclic), Nomenclature, Synthesis and Configurations.	2	4

2 Course components (total contact hours per semester):				
Lecture: 32	Tutorial:	Laboratory	Practical/Field work/Internship	Other:

3. Additional private study/learning hours expected for students per week. (This should be an average :for the semester not a specific requirement in each week)

<p>4. Development of Learning Outcomes in Domains of Learning</p> <p>For each of the domains of learning shown below indicate:</p> <ul style="list-style-type: none"> <li>• A brief summary of the knowledge or skill the course is intended to develop;</li> <li>• A description of the teaching strategies to be used in the course to develop that knowledge or skill;</li> <li>• The methods of student assessment to be used in the course to evaluate learning outcomes in the domain concerned</li> </ul>
<b>a. Knowledge</b>
<p>(i) Description of the knowledge to be acquired</p> <ul style="list-style-type: none"> <li>• Students learn the properties of organic compounds containing more than one function group as well as alicyclic organic compounds.</li> </ul>

<ul style="list-style-type: none"> <li>• Student will be able to use what they have learned to convert some organic compounds to each other.</li> <li>• Student will be able to distinguish between organic compounds and each other. and</li> </ul>
<p>(ii) Teaching strategies to be used to develop that knowledge</p> <ul style="list-style-type: none"> <li>• Lectures.</li> <li>• Problem solving.</li> <li>• Dialogue and discussion.</li> </ul>
<p>(iii) Methods of assessment of knowledge acquired</p> <ul style="list-style-type: none"> <li>• Reports, homework discussions and oral exams (10%).</li> <li>• First mid-term exam (20%).</li> <li>• Second mid-term exam (20%).</li> <li>• Final written examination (50%).</li> </ul>
<p><b>b. Cognitive Skills</b></p>
<p>(i) Description of cognitive skills to be developed</p> <ul style="list-style-type: none"> <li>• Predict the physical and chemical properties of bifunctional organic compounds and alicyclic organic compounds</li> <li>• Teaching students the importance of knowing the ways to prepare these compounds and how to use these methods to convert these compounds to other organic compounds.</li> <li>• Helping students on how to know the chemical structure for each class of organic compounds.</li> </ul>
<p>(ii) Teaching strategies to be used to develop these cognitive skills</p> <ul style="list-style-type: none"> <li>• Lectures</li> <li>• Discussion with students</li> <li>• Writing reports</li> <li>• Solution of home works</li> <li>• Teaching students the importance of the references available on the library and websites that related to the contents of the course</li> </ul>
<p>(iii) Methods of assessment of students cognitive skills</p> <ul style="list-style-type: none"> <li>• Short exams</li> <li>• Two midterm exams</li> <li>• Assessment of students' reports and home works</li> </ul>
<p><b>c. Interpersonal Skills and Responsibility</b></p>
<p>(i) Description of the interpersonal skills and capacity to carry responsibility to be developed</p> <ul style="list-style-type: none"> <li>• Educating student the ethics of dealing with his colleagues and with the lecturer.</li> <li>• Teaching students the responsibility toward themselves and toward others</li> <li>• From time to time dividing students to groups to make them aware of responsibility.</li> <li>• Instilling the self-learning character in the student.</li> </ul>
<p>(ii) Teaching strategies to be used to develop these skills and abilities</p>

<ul style="list-style-type: none"> <li>• Cooperative learning</li> <li>• Work in groups</li> <li>• Writing reports alone and in groups.</li> <li>• Discussion with students</li> </ul>
(iii) Methods of assessment of students interpersonal skills and capacity to carry responsibility <ul style="list-style-type: none"> <li>• Correction of the individual and collective duties.</li> <li>• Dividing the students to groups and introducing oral questions and solving these questions through discussion groups.</li> </ul>
<b>d. Communication, Information Technology and Numerical Skills</b>
(i) Description of the skills to be developed in this domain. <ul style="list-style-type: none"> <li>• Ability to use Computer to search the internet about topics related to contents of the course.</li> <li>• The ability to communicate in English both orally and in writing.</li> </ul>
(ii) Teaching strategies to be used to develop these skills <ul style="list-style-type: none"> <li>• Data Show presentation</li> <li>• Oral discussion with students</li> <li>• The use of computer programs</li> <li>• Teaching by using the e-learning tools.</li> </ul>
(iii) Methods of assessment of students numerical and communication skills <ul style="list-style-type: none"> <li>• Written and Oral Exams.</li> <li>• Homework assignments</li> <li>• The questions of the two midterm and final exams consists of multiple choices, true and false, draw structures and write the mechanism for some reactions.</li> </ul>
<b>e. Psychomotor Skills (if applicable)</b>
(i) Description of the psychomotor skills to be developed and the level of performance required <ul style="list-style-type: none"> <li>• Computer typing.</li> <li>• Reading and writing</li> </ul>
(ii) Teaching strategies to be used to develop these skills <ul style="list-style-type: none"> <li>• Training students how to use computer programs</li> <li>• Written exams and Oral discussion</li> </ul>
(iii) Methods of assessment of students psychomotor skills  Homework

5. Schedule of Assessment Tasks for Students During the Semester			
Assessment	Assessment task (eg. essay, test, group project, examination etc.)	Week due	Proportion of Final Assessment
1	Homework's and discussions	continuous	10%

2	First midterm exam	8	20%
3	Second midterm exam	13	20%
4	Final exam	17	50%

## D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

Office Hours: 10 hours

## E Learning Resources

1. Required Text(s)	الكيمياء العضوية: د. ت. و. جراهام سلومونز ترجمة د. عادل الجزار
2. Essential References	1 - Organic Chemistry; Morrison and Boyd. 2- Organic Chemistry Vol.1; I. L. Finar
3- Recommended Books and Reference Material (Journals, Reports, etc) (Attach List)	1- Advanced Organic Chemistry; Michael B. Smith and Jerry March 2- Advanced Organic Chemistry 4 <sup>th</sup> edition; Francis A. Carey and R. J. Sundberg
4-.Electronic Materials, Web Sites etc	<a href="http://www.chemguide.co.uk/mechanisms/freerad/whatis.html#top">http://www.chemguide.co.uk/mechanisms/freerad/whatis.html#top</a>
5- Other learning material such as computer-based programs/CD, professional standards/regulations	<a href="http://www.chemguide.co.uk/mechanisms/freerad/whatis.html#top">http://www.chemguide.co.uk/mechanisms/freerad/whatis.html#top</a>

## F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (ie number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Lecture rooms, laboratories, etc.)  Class room contains <ul style="list-style-type: none"> <li>• Data Show</li> <li>• Blackboard</li> <li>• Chairs (50)</li> </ul>
2. Computing resources  Common computer lab containing at least 20 computer sets and internet access.
3. Other resources (specify --eg. If specific laboratory equipment is required, list requirements or attach list)  Nothing

## G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching <ul style="list-style-type: none"> <li>• Filling forms prepared by the National Authority for Assessment and Accreditation and analyzing them statistically to benefit from the results to improve the educational process</li> </ul>
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department <ul style="list-style-type: none"> <li>• Reviewing the course report by colleagues in the same college or by same specialty in another institution</li> <li>• Reviewing the course report by a specialist in the development and quality unit.</li> </ul>
3 Processes for Improvement of Teaching <ul style="list-style-type: none"> <li>• Participation in the workshops held on the teaching methods prepared by the college or university</li> <li>• Reviewing recommended teaching strategies and implement</li> </ul>
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) <ul style="list-style-type: none"> <li>• Checking sample of the corrected midterm and final exams by colleague from the same college</li> </ul>
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. <ul style="list-style-type: none"> <li>• Revision of the course content from time to time from concerned parties in the department and college</li> <li>• Achieving the necessary modifications based on the feedback from the statistical analysis of the student marks by the experts in the field and faculty members.</li> </ul>

