**340 chem (Organic Chemistry)**

**COURSE PLAN 2016**

**Instructor: Fatmah Ali Alasmary**

**Assistant Professor of organic chemistry**

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| **OFFICE** | Room 241 B05 |
| **OFFICE HOURS** | Monday and Wednesday (10-11) |
| **OFFICE PHONE** | +96618055486 |
| **E-MAIL ADDRESS** | [fasmari@ksu.edu.sa](mailto:fasmari@ksu.edu.sa) |
| **WEB PAGE** | <http://faculty.ksu.edu.sa/22913/default.aspx> |
| **CLASS HOURS** | Monday and Wednesday (9-10) |

**Introduction and Course Goals**

Welcome to **Organic Chemistry**. **Chem. 340 2(2+0),** course offered to meet the needs of students interested in cheemistry sciences, and provide them with the basic concepts of organic chemistry relevant to their further studies and life. All will be discussed and explored in detail. When you finish this course, you should be able to:

√        Classification of organic compounds

√        Nomenclature of common classes of organic compounds

√        Relationship between structure, physical and chemical properties

√        Formation and reactions of common functional groups

√        Application of organic compounds in life.

**LECTURE SCHEDULE**

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| **No.** | **Topic** |
| **1** | **Introduction and course requirements**  **Organic- Halides**    Nomenclature, physical properties.    Synthesis [halogenations of alkanes, addition of HX to alkenes and alkynes, from alcohol ( SOCl2 , PX3, PX5)].    (SN1, SN2, E1, E2)    Reactions (nucleophilic substitution elimination, Grignard’s reagent, reduction by metal and acids) |
| **2** | **Alcohols**    Nomenclature, physical properties.    Addition of water to alkenes; oxidiation of alkenes    Substitution of halogen in halide alkyl    Grignard reagent with Aldehdydes , ketones and esters, reduction of Aldehdydes, ketones , acids and esters). |
| **3** | **Alcohols**    Reaction of alcohols (salt formation, oxidation, ester formation.    Reactions with hydrogen halide, SOCl2, PX3,    Elimination of H2O |
| **4** | **Thiols**    Nomenclature, physical properties.    Preparation    Reactions |
| **5** | **Phenols**    Nomenclature, physical properties    Synthesis of phenols (hydrolysis of diazonium salt, alkali fusion, of sodium benzene sulfonates).    Reaction of phenol (salt formation, oxidation, ester formation). |
| **6** | **Sulfides**    Nomenclature, physical properties.    Preparation    Reactions |
|  | **First  MID TERM EXAM** |
| **7** | **Ethers and epoxides**    Nomenclature, physical properties    Synthesis of ether (dehydration of alcohols, William synthesis of epoxide, synthesis from alkenes and alcohol. |
| **8** | **Ethers and epoxides**    Reaction of ethers (with HI, reaction of epoxide(three member ring ) with H2O, ROH,  HX, LiAlH4, phenol, Grignard reagent. |
| **9** | **Aldehyde and Ketones**    Nomenclature, physical properties.    Synthesis [ oxidation of alcohols, ozonolysis of alkenes, hydration of alkynes, hydrolysis of alkyl dihalides]. |
| **10** | **Aldehyde and Ketones**    Reaction of aldehyde and ketones [ reaction of carbonyl compounds, addition of Grignard reagent, addition of alkynide ions, addition of HCN. |
| **11** | **Aldehyde and Ketones**    Addition of alcohol,(hemiacetal, cital, hemiketal, and ketal formation, no mechanism) Addition of ammonia and its derivatives, synthesis of amino acids , acidity of aldehaydes and ketones, aldol condensation |
|  | **SECOND MID TERM EXAM** |
| **12** | **Carboxylic acid and their derivatives**    Nomenclature, physical properties.    Synthesis [oxidation of aldehyde], carbonation of Grignard reagent, hydrolysis of nitrile, and carbonation of acetylene. |
| 13 | **Carboxylic acid and their derivatives**    Reaction of carboxylic acid( salt formation, formation of acid derivatives: acid chloride, acid anhydride, amide, ester. |
| **14** | **Carboxylic acid and their derivatives**    Reaction of acid derivatives [elimination reaction, hydrolysis of acid chloride, ester, reaction with acid chloride, acetylation, reduction. |
| **15** | **Amines**    Nomenclature, physical properties.    Synthesis, of amines[ reduction of nitro, nitrile, oxime, amide, alkylation of ammonia]. |
| **16** | **Amines**  Reaction [salt formation, alkylation, reaction with nitrous acid, amide formation. |
|  | **Final EXAM** |

**Grading**

Why do we give grades?

√        Grades give you and me feedback on how well you are accomplishing course educational goals.

√        Grades give the University of King Saud, other universities, and employers one measurement of your competencies.

√        Grades give the University information about how well I am doing my job.

√        Grades give me information about your learning that helps me improve the course.

√        The longer I teach, the more convinced I am that the amount of active participation by the student determines how much effective learning takes place.

√        I am also convinced that for material to be learned in such a way that it is useful to you during the course and after the course is over, it must be learned stepwise (not the night or weekend before an exam).

√        Although later exams will emphasize more recent material, exams will be cumulative throughout the semester.

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| First Mid Term Exam | 20 % |
| Second Mid Term Exam | 20 % |
| Quizzes | 20 % |
| Final Exam | 40% |
| Total | 100 % |

**Testing conditions**

√        Once an exam has been handed out, students are not allowed to leave the classroom and return.

√        Please make every effort to come to the classroom prepared for the test.

√        All cell phones, automatic alarm watches should be turned off before entering the classroom in order to prevent disturbing the class.

√        Grades will be available as soon as possible.

**Grading Scale**

√        **A+** = 100 to 95%

√        **A** = 94 to 90%

√        **B+** = 89 to 85%

√        **B** = 84 to 80%

√        **C+** = 79 to 75%

√        **C** = 74 to 70%

√        **D+** = 69 to 65%

√        **D** = 64 to 60%

√        **F** = Below 60%

**Make up Policy**

√        Exams must be taken on the date scheduled.

√        Make-up exams will be given **only** for approved documented excuses & will be on all subjects covered by both exams.

**Hints on how to do well in this class**

**Before class**

√        Read the relevant text once-through briefly.

√        Access the lecture outlines on-line, print them and add your notes to them.

√        Lecture outlines will be incomplete without good note-taking in class!

**During class**

√        Attend classes and compile a thorough set of lecture notes; participate in learning activities.

√        Don't be embarrassed to ask questions or ask instructors to repeat material.

**After lecture**

√        Review your notes and read the relevant text sections again.

√        With the use of your text, be sure that you understood the class material.

**Classroom Behavior and Academic Integrity**

√        Courtesy is required in the classroom; I will treat you with respect and expect you to be respectful of your fellow classmates and me.

√        All cell phones and pagers must be turned off in the classroom, and conversation should be limited unless you have been instructed to participate in an active discussion.

**RESOURCES**

**Textbooks**

**Organic chemistry: A short course, Harold hart *et al  1995***

**Electronic Resources**

Organic Chemistry - tenth edition - By T. W. Graham Solomons & Caraig B. Fryhle

موقع التنزيل المتاح هو

<https://drive.google.com/file/d/0B3yBUlQNJt0lT2NCSlBjZ0FRUnc/edit?pref=2&pli=1>

All class materials, including the course schedule and syllabus, learning objectives, lecture outlines, practice exams, and grades are available on line.

**Dr Fatmah Alasmary**