King Fahd University of Petroleum & Minerals

CHEM-303 (081)

Textbook : ***"THE SYSTEMATIC IDENTIFICATION OF ORGANIC COMPOUNDS"***
by Shriner, Hermann, Curtin, Morrill and Fusion, 8th Edition.

COURSE OUTLINE:

Lecture	Day	Date	Lecture / Reading Assignment	Important Events
1	Sunday	12th October	Identification of Unknowns (Ch. 2)	
2	Tuesday	14th October	Preliminary Examination, Physical Properties, & Elemental Analysis (Ch. 3.1, 3.2, 3.4-3.6)	
3	Sunday	19th October	Solubility (Ch. 5)	
4	Tuesday	21st October	Classification Tests (Ch. 9)	***Last day for dropping courses without a permanent record***
5	Sunday	26th October	Classification Tests (Ch. 9)	
6	Tuesday	28th October	Infrared Spectroscopy (Ch. 7 & Ch. 9 in Fessenden & Fessenden)	
7	Sunday	2nd November	Infrared Spectroscopy (Ch. 7 & Ch. 9 in Fessenden & Fessenden)	
8	Tuesday	4th November	^{1}H NMR (Ch.6.1-6.3 & Ch. 9 in Fessenden & Fessenden)	
9	Sunday	9th November	^{1}H NMR (Ch.6.1-6.3 & Ch. 9 in Fessenden & Fessenden)	
10	Tuesday	11th November	^{1}H NMR (Ch.6.1-6.3 & Ch. 9 in Fessenden & Fessenden)	***"Mid Term Grade" reports due to Deanship***
11	Sunday	16th November	**Major Exam 1 (Classification Tests) 11:00 AM- 12:30 PM**	
12	Tuesday	18th November	^{1}H NMR (Ch.6.1-6.3 & Ch. 9 in Fessenden & Fessenden)	***Last day for dropping courses with a grade of "W" via Internet***
13	Sunday	23rd November	^{1}H NMR (Ch.6.1-6.3 & Ch. 9 in Fessenden & Fessenden)	
14	Tuesday	25th November	^{1}H NMR (Ch.6.1-6.3 & Ch. 9 in Fessenden & Fessenden)	
15	Sunday	30th November	Separation of Mixtures (Ch. 4.1 & 4.2)	
16	Tuesday	2nd December	Separation of Mixtures (Ch. 4.3)	
Id al-Adha Vacation (Wednesday December 3rd - Saturday December 13th)				
17	Sunday	14th December	Chromatography (Ch. 4.4)	
18	Tuesday	16th December	Optical Rotation (Ch. 3.3)	
19	Sunday	21st December	^{13}C NMR (Ch.6.4-6.5 & Ch. 9 in Fessenden & Fessenden)	
20	Tuesday	23rd December	^{13}C NMR (Ch.6.4-6.5 & Ch. 9 in Fessenden & Fessenden)	
21	Sunday	28th December	**Major Exam 2 (IR & NMR) at 11:00 AM- 12:30 PM**	
22	Tuesday	30th December	^{13}C NMR (Ch.6.4-6.5 & Ch. 9 in Fessenden & Fessenden)	***Last day for withdrawal from all courses with grade of "W" thru the Registrar***
23	Sunday	4th January 2009	^{13}C NMR (Ch.6.4-6.5 & Ch. 9 in Fessenden & Fessenden)	
24	Tuesday	6th January	Mass Spectrometry (Ch. 8)	
25	Sunday	11th January	Mass Spectrometry (Ch. 8)	
26	Tuesday	13th January	Mass Spectrometry (Ch. 8)	
27	Sunday	18th January	Mass Spectrometry (Ch. 8)	
28	Tuesday	20th January	Ultraviolet Spectroscopy	***Last day for withdrawal from all courses with grade of "WP/WF" thru Registrar***
29	Sunday	25th January	Ultraviolet Spectroscopy	
30	Tuesday	27th January	Review	
Final Exam (Thursday-*February 5th, 2009 at* 7:30 AM)				

CHEM-303 LABORATORY ASSIGNMENTS (081)

WK	Date	Unknown#	Laboratory Assignment & Requirements	Date Due	Score
1 2 3	Oct. 15th Oct. 22nd Oct. 29th	1	***Unknown # 1: A solid Organic Acid*** (1) Neutralization Equivalent (2) Make one derivative (No IR or NMR)	Nov. 5th	100
4 5	Nov. 5th Nov. 12th	2	***Unknown # 2: An Organic Solid*** (1) Classification Tests (2) Make one derivative (3) Interpret given IR & NMR	Nov. 19th	100
6 7	Nov. 19th Nov. 26th	3	***Unknown # 3: An Organic Liquid*** (1) Prepare and Run Sample for IR (2) Prepare and Run sample for NMR	Dec. 17th	100
8 9 10 11 12	Dec. 17th Dec. 18th Dec. 24th Dec. 31st Jan. 7th 2009	4	***Unknown # 4: Separation by Extraction of a Mixture of 2 Components*** (1) Prepare and Run Sample for IR (2) Prepare and Run sample for NMR	Jan. 14th 2009	200
13 14	Jan. 14th Jan. 21st	5	***Unknown # 5: Identify a Single Unknown*** i) Exam-like Laboratory ii) No help given	Jan. 28th	100
15	Jan. 28th		FINISH ALL EXPERIMENTS AND SUBMIT COMPLETED LAB BOOK.	Total = 600	

* Elemental analysis for halogens and nitrogen must be conducted for all unknowns.

Important Chapters & Appendices for the Laboratory Assignments

- **Table 9.1** (inside front cover): Classification Tests: listed by Functional Group.
- **Chapter 10** The Preparation of Derivatives
- **Appendix II** Tables of Derivatives
- **Chapter 11** Structural Problems – Solution Methods and Exercises

Grading System

The marks will be allocated as follows:

- 30% Major Exams (M1: 13% & M2: 17%)
- 25% Final Exam
- 30% Laboratory
- 15% Class Work (Homework& Quizzes)

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Office Hours:

Open-door policy and by appointment - If not in office 4-233, could be in Lab 4-213
S-U-M-T-W = 10:00-11:00 AM