**Syllabus Chem 28A Organic Chemistry #59743**

**V. Cornel**

**Reedley College, Fall 2014**

Lecture: TTh 2:00pm-3:15 in Room PHY 77

Office hours: PHY78 MWF 10-11

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**Lecture**

In general, read the chapter sections ahead of the lecture. Print the fill-in notes for each chapter and bring to class. At the end of the fill-in notes for each chapter are the assigned homework questions. Do these to check your understanding of the chapter and to practise for the exams. I will not be collecting this homework. I will either post solutions or go over them in class. The more effort you put into the homework the better you will do in the exams.

**Textbooks**

1. Klein, Organic Chemistry, 2nd edition

2. Traynham, Organic Nomenclature, 6th edition

**Course objectives:**

This is the first semester in a year-long course in organic chemistry designed for students majoring in chemistry and related disciplines, such as premedical, prepharmacy, predental, biology, biochemistry or chemical engineering. We will build on the knowledge gained in Chem1A and 1B, which are pre-requisite courses. This course is a study of the structures, properties, nomenclature and reactions of organic compounds with emphasis on reaction mechanisms. The course is recommended for students whose major is chemistry, premedical, predental, prepharmacy, biology, biochemistry or chemical engineering. The following topics are included: stereochemistry, alkanes, alkenes, alkynes, alkyl halides, alcohols, amines, ethers, epoxides, kinetic and thermodynamic control of reactions, multistep syntheses, infrared spectroscopy, nuclear magnetic spectroscopy, and mass spectroscopy, introduction to aromatics and recognition of other functional groups like ketones, aldehydes and carboxylic acids. The students will develop a level of learning skills, vocabulary and critical thinking skills which will enable them to successfully transfer to four year institutions.This course is also helpful towards preparation for the MCAT and PCAT.

**Student Learning Outcomes:**

Upon completion of this course, students will be able to**:**

1. analyze the structural formula of an organic compound, recognize its functional groups and name it properly.
2. draw a structural formula given the systematical name of an organic compound.
3. recognize stereochemistry and describe the physical properties of chiral compounds.
4. complete the reactions of many aliphatic molecules and write the correct reaction mechanism.
5. analyze MS, IR and NMR spectra and determine the structure of an unknown compound.

**Grading**:

**Average of the 5 exams 100%**

Typical break-off for grading: A> 90%; B 80-89%; C 70-79%; D 60-69%; F< 59%.

**Drop date**: The final date to drop this class is Friday Oct 10, 2014. After that day a letter grade needs to be assigned and it will appear on your transcripts. You will avoid a "W" if you drop the class on or before Friday August 29, 2014.

**Attendance and class rules**: In accordance with Community College policy attendance is mandatory. If you miss the first day without contacting the instructor you will be dropped. After that if you miss a total of 25% of the lectures *without contacting the instructor* *and providing a credible written excuse*, you may be dropped.

Use of i-phones, cell phones, tardiness, leaving early, stepping out of class, talking during class, disrupting class, sleeping during class, or doing other work is all considered disruptive behavior and you will be recorded as "absent" and may be asked to leave.

If you have to miss an exam *and provide a credible, written excuse*, I will allow you to do a make-up exam on the same day as the final exam.

**Lecture topics**:

We will have to cover a chapter every week. You are supposed to read the chapters ahead of time and do the assigned homework. Also, watching UC Irvine lectures, or Khan Academy video’s, can be very helpful to fully understand the material.

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| A. Structure and properties of the carbon atomB. Methane1. energy of activation
2. transition states

C. Alkanes1. free radical substitution)

D. Stereochemistry I1. stereoisomers

E. Alkenes1. structure and preparation
2. elimination reactions
3. addition reactions

F. Nucleophilic substitution reactions,1. first order
2. second order.

G. Stereochemistry II1. preparation and reactions of stereoisomers

H. Elimination Reactions1. E1 and E2 mechanisms
2. rearrangement of carbocations.

I. Alkynes and dienesJ. Analytical techniques1. mass spectrometry,
2. infrared spectroscopy
3. nuclear magnetic resonance spectroscopy

K. Alcohols1. preparation
2. physical properties
3. reactions

L. Ethers and epoxidesM. Introduction to Aromatics, and recognition of other functional groups like aldehydes, ketones, and carboxylic acids. |
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**Important***: If you have a verified need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact me as soon as possible.*

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| Date |  |
| **Friday, August 29** | **Last day to add a class** |
| Tuesday Sep 2  | Exam 1  |
| Tuesday Sept 23 | Exam 2 |
| **Friday, Oct 10** | **Last day to drop a course to receive a “W”**  |
| Thursday Oct 16 | Exam 3 |
| **Tuesday Nov 11** | **Veteran's Day. No classes** |
| Thursday, Nov 13 | Exam 4 |
| Tuesday Dec 9  | Exam 5  |