**Syllabus Chem 28B Organic Chemistry. Spring 2012**

**J. Dekker, Reedley College**

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| **Lecture:** TTh 12:00 pm- 1:15pm in Room LFS B |
| **Office:** ADM 9, phone # (559) 638.0353 |
| **email:** [jan.dekker@reedleycollege.edu](mailto:jan.dekker@reedleycollege.edu) |
| **Office hours:** By appointment; feel free to email me any time to make the appointment |
| **Chemistry Department web site: use my Blackboard site or Facebook** |
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**Course objectives:** Chem 28B is an organic chemistry course for biological sciences, and chemistry majors. In addition, chemical engineering, pre-med, pre-pharmacy, pre-vet, and pre-dental professional majors will also need this course. Students acquire a solid base to study biochemistry, pharmacology, and other biology and chemistry related fields. In this class we make a thorough study of the reactions of principal functional groups with emphasis on theory and mechanism. We will build on the knowledge gained in Chem 28A, which is the pre-requisite course. A thorough introduction to bio-molecules, such as carbohydrates, lipids, proteins, and DNA are an important part of this semester. 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.

**Course outcomes:** Outcomes will include but are not limited to the following.

1. Students will be able to complete reactions involving the carbonyl functional group. They will be proficient in understanding these reactions by writing the reaction mechanisms using Lewis structures and curved arrow notations.

2. Students will recognize the major building blocks of the most important bio-molecules.

**Textbooks:**

1.McMurry, Organic Chemistry, A Biological Approach, *Thomson Publishing, second edition.*

2. Traynham, Organic Nomenclature, *Prentice Hall, sixth edition.*

**Quizzes and exams:** There will be three quizzes and three exams equally divided over the semester. The average score of the quizzes is worth two exam scores. Including the final there will be a total of three exams, typically covering more material than the quizzes. Each exam including the final will be equally weighted. Students who wish to transfer to UC Berkeley need to take the comprehensive official American Chemical Society Organic Chemistry Exam. For acceptance into UC Berkeley's Chemistry Department, they will have to pass this exam with a score of 75%. Please, contact me ahead of time to make arrangements for this exam.

A **no show** for a quiz or exam without prior notice is graded with 0% (zero percent) and the student looses the incentive described below in the section Grading. A no show can never be made up. The zero grade is also used for any form of fraudulent behavior.

**LECTURE QUIZZES AND EXAMS**

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| Thursday 1/26 | Quiz 1 |
| Thursday 2/16 | Exam 1 |
| Thursday 3/8 | Quiz 2 |
| Thursday 3/29 | Exam 2 |
| Thursday 4/26 | Quiz 3 |
| Tuesday 5/15 | Final Exam 12:00pm -1:50 in LFS B |

**Grading:** The average of graded homework and pop quizzes is worth the weight of one exam score. If the student's attendance was 95% and he/she has fulfilled all the assignments properly and submitted **on time**, the lowest grade of the quizzes will be dropped. The following general break-off will be used for grading: **A > 90%; B 80-89%; C 70-79%; D 60-69%; F < 59%.**

**Homework:** Homework will be assigned often. It is essential to your success in this course that you do your homework, with the emphasis on readings in McMurry's text. Occasionally homework will be collected and selected problems from McMurry and Traynham will be graded. Also, on occasion, a pop quiz might be given to check the homework assignment.

**Attendance:** In accordance with Community College policy attendance is mandatory. If you miss two weeks or three consecutive lectures without prior notice you will be dropped automatically. Tardiness, frequently leaving early, sleeping during class, texting, and the use of cell phones (in any form) are all considered disruptive behavior and will be qualified with an absence.

**Drop date:** The final date to drop a class is FRIDAY MARCH 9, 2012. After that day a letter grade A-F must be assigned and it will appear on your transcript. When you drop the class or are dropped from the class before Friday January 27, 2012 you will avoid a W.

**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.*

**Lecture topics:** The chapters mentioned below are from McMurry's Organic Chemistry text, A Biological Approach. We will start with a theoretical overview of Nuclear Magnetic Resonance theory and analysis of NMR spectra. Read Chapter 11.

1. Alcohols, Phenols, and Thiols; Ethers and Sulfides. Organo-metallic Compounds. Chapter 13

2. Aldehydes and Ketones: Nucleophilic Addition Reactions. Chapter 14

3. Carboxylic Acids and Nitriles. Chapter 15

4. Carboxylic Acid Derivatives: Nucleophilic Acyl Substitution Reactions. Chapter 16

5. Carbonyl Alpha-Substitution and Condensation Reactions. Chapter 17

6. Amines and Heterocycles. Chapter 18

7. Biomolecules: Amino Acids, Peptides, and Proteins. Chapter 19

8. Biomolecules: Carbohydrates. Chapter 21

9. Biomolecules: Lipids and Their Metabolism. Chapter 23

10. Biomolecules: Nucleic Acids and Their Metabolism. Chapter 23

There are no lectures during Spring Recess from Monday 4/2 through Friday 4/7/2012.

**Recommended readings and useful computer programs and Apps**

1. Paula Y. Bruice, Organic Chemistry

2. Lehninger, Principles of Biochemistry

3. Barbara Luceigh, Organic Chem TV I and II

4. G. Lampman, Organic Nomenclature. An introduction to the IUPAC System. An excellent program including a tutorial

5. SPARTAN, WAVE-FUNCTION. A Molecular Modeling Program

6. Segel, Biochemical Calculations

7. OCE App for iphones and the android market. OCE=Organic Chemistry Essentials.

JD/January 2012