CHEM 3153 Section 002
Organic Chemistry II Biological Emphasis

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Office Hours: Mondays 9:30am-11:30am in PHSC 308A
Wednesdays 9:30am-11:30am in PHSC 308A
(If you can’t make it during these hours, please make an appointment by e-mail)

Lectures: Mondays: 1:30pm-2:20pm PHSC 201
Wednesdays: 1:30pm-2:20pm PHSC 201
Fridays: 1:30pm-2:20pm PHSC 201

Action Center Meeting: TBD

Assessment: Quiz 1: Friday, Jan. 31. (In Class) 5%
Quiz 2: Friday, Feb. 28. (In Class) 5%
Quiz 3: Friday, Mar. 28. (In Class) 5%
Quiz 4: Friday, Apr. 25. (In Class) 5%
Mid Term 1: Friday Feb. 14. (In Class) 10% - 15%
Mid Term 2: Friday Mar. 14. (In Class) 10% - 15%
Mid Term 3: Friday Apr. 11. (In Class) 10% - 15%
Final Exam: Tuesday May. 6. (8:00am-10:00am) 35% - 50%

Total: 100%
Bonus: + 1%

No make-up quizzes will be given. A grade of 0 will be assigned to missed quizzes without documentation of a reasonable excuse for the absence. Make-up midterms will be allowed only upon providing documentation of a reasonable excuse for the absence. If no documentation is provided, a grade of 0 will be assigned.


Molecular models are highly recommended. Darling Molecular Models are best. These are available at the bookstore.

This syllabus is subject to change at any point throughout the semester. Reasonable notice will be given for any changes made.
Course Outline

Part A: Conjugated $\pi$-Systems
1) Conjugated Dienes
   a. Stability
   b. Molecular Orbital Theory Representation
   c. Additions to conjugated dienes
   d. Cycloaddition Reactions: Diels-Alder Cycloaddition
   e. Electrocyclic Reactions: Thermal vs. Photochemical
   f. Sigmatropic Rearrangements: Cope and Claisen Rearrangements

2) Aromatic Compounds
   a. Nomenclature
   b. Structure and Stability
   c. Criteria for Aromaticity
   d. Reactions at the Benzylic Position
   e. Reduction of Aromatic Compounds
   f. Electrophilic Aromatic Substitution (EAS) Reactions
   g. Nucleophilic Aromatic Substitution ($S_{NAr}$) Reactions
   h. Benzyne as an Intermediate
   i. Synthesis

Part B: Carbonyl Chemistry
1) Aldehydes and Ketones
   a. Nucleophilic additions
   b. Synthesis

2) Carboxylic Acids and Derivatives
   a. Preparation
   b. Reactivity
   c. Synthesis

3) Enols and Enolates
   a. Formation
   b. Halogenation
   c. Aldol Reactions
   d. Claisen Condensations
   e. Alkylation
   f. Conjugate Additions
   g. Synthesis

Part C: Amines
1) Reactions of Amines
   a. Properties
   b. Preparation
   c. Acylation
   d. Elimination
   e. Aryldiazonium Ions
   f. Nitrogen Heterocycles
   g. Synthesis
**Part D: Biological Chemistry**

1) Carbohydrate Chemistry  
   a. Classification  
   b. Reactions  

2) Amino Acids, Peptides, and Proteins  
   a. Structure and Properties  
   b. Synthesis  

3) Lipids  
   a. Waxes  
   b. Triglycerides  
   c. Phospholipids  
   d. Steroids  
   e. Prostaglandins  
   f. Terpenes

**Additional Information**

**Academic Misconduct:** Information on the University of Oklahoma’s policies toward academic misconduct can be found at [http://integrity.ou.edu/students_guide.html](http://integrity.ou.edu/students_guide.html).

**Special Accommodations:** Students requiring accommodations in this course are to be registered with the Disability Resource Center prior to receiving accommodations. Information for the Disability Resource Center can be found at: [https://www.ou.edu/content/drc/home/students/accommodations.html](https://www.ou.edu/content/drc/home/students/accommodations.html).

**Behavior:** Information on the University of Oklahoma’s policies toward student conduct can be found at [http://judicial.ou.edu/](http://judicial.ou.edu/).