

Fall 2015

## **CHEM 5210**

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*University of New Orleans*

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# CHEMISTRY 5210-Fall 2015

Instructor: Branko S. Jursic, CSB323; Tel: (504) 280-7090; e-mail: bjursic1@uno.edu  
Office Hours: MoWeFr 11:00 AM-NOON

Meetings: Sci Bldg 2068

Lectures: MoWeFr 10:00 AM - 10:50

Supplies:

TEXT: Bruckner, R. "Organic Mechanisms, Reactions, Stereochemistry and Synthesis" 3<sup>rd</sup> Edition, Springer-Verlag Berlin Heidelberg 2010. (ISBN: 978-3-642-03650-7).

**GENERAL REMARKS:** The listed above textbook is only guidance for material that will use. All lectures as well as literature related to the lectures will be available on Moodle. The most efficient way to meet the fairly heavy demands of this course is to institute and maintain a regular study schedule, using the lectures to guide you in the emphasis of the text presentation. The lecture material must be learned so that you are able to work problems and self-tests without reference to notes or text. In this way you can be assured of being able to handle the material under examination conditions.

**DISABILITIES:** Students who qualify for services will, whenever possible, receive the academic modifications for which they are legally entitled.

**ACADENIC INTEGRITY:** Academic integrity is fundamental to the process of learning and evaluating academic performance. Academic dishonesty will not be tolerated. Academic dishonesty includes, but is not limited to, the following: cheating, plagiarism, tampering with academic records and examinations, falsifying identity, and being an accessory to acts of academic dishonesty. Refer to the UNO Judicial Code for further information, including the consequences for acts of academic dishonesty (<http://www.studentaffairs.uno.edu/pdfs/StudentCode.pdf>).

**LECTURE ATTENDENCE:** Lecture attendance will be monitored each and every time. The attendance is worth 150 points of the overall grade. If you don't turn up, besides losing the attendance points chances are you will miss something important and. This is your loss. At this level, a certain level of enthusiasm and dedication is expected. It is not the instructor's job to teach you these important qualities

**EXAMS:** There will be four quarterly exams that have equal contribution (150 points each). These quarterly exams will be held at the class time as listed in the schedule of lecture. There will be no make-up for these exams and no possibility of taking the exam early or late. You must take the exam on the scheduled time and place.

**PRESENTATION:** Original research publications related to organic mechanism will be selected and assigned to each and every student for 30 minutes presentation. The presentation will count for 100 points

**FINAL EXAM:** The final exam is comprehensive and will count for 250 points of the final grade. The exam is scheduled for Thursday 8<sup>th</sup> of May at 12:30 p.m. and will last for two hours. It will be held in Sci Bldg 2068. There will be no make-up for the final exam and no possibility of taking the exam early or late. You must take the final exam on the scheduled time. Failure to take the final exam at the scheduled time and place will automatically result in a failing grade being assigned.

**MAKE-UP EXAM:** Make-up exams will not be given except if a valid documentable excuse is provided no longer than 24 hours after regular exam time. Make-up exam will be different than regular.

GRADING POLICY: Your grade will be determined by a comparison to the class mean. The mean, to two significant figures, will be set at the middle of C grade. For instance if the average of the class performance is 850 points out of 1100 (middle grade C) then the grade scale will be:

1001-1100 (A)  
901-1000 (B)  
801-900 (C)  
701-800 (D)

GRADE is based on class attendance and five exams:

Class attendance (150 points)  
First exam (150 points)  
Second exam (150 points)  
Third exam (150 points)  
Fourth exam (150 points)  
Final exam (250 points)  
Presentation (100 points)

EXAMINATION RULES: You must bring your UNO identity card to each exam. You may not leave early nor late from the exam room. No notes, books, calculators, phones or personal electronic devices of any kind are permitted. If required, a periodic table will be provided. Academic dishonesty will not be tolerated. "Regrades" must be submitted within 10 days of the exam date, or within 10 days of the date that homework is returned. Under these conditions, the entire exam will be scrutinized and, as appropriate, either a lower or a higher grade given. To be eligible for a "regrade" the exam or homework must be written in black or blue ink. Exams written in red ink or pencil will not be eligible for regrading. Finally, note that no complaints regarding final grades will be entertained. What you get is... well, what you get!

LEARNING OBJECTIVES: The learning objectives are manifold. At the end of the course, students will have a sound comprehension of mechanism of chemical transformations. More specifically, using precise and concise language, students will be able to discuss: 1) mechanism of radical reactions 2) substitution reactions, 3) addition and elimination reactions, 4) rearrangement and condensation, 5) and finally must understand principle of "pushing electrons" in the reaction mechanism.

MASTERING CHEM 5210: Requires many skills: memorization, rational/strategic thinking and visualizing three-dimensional molecular interactions to name but three. You need to work on each of these. As always, practice makes perfect. Work, work, work! Don't fall behind the material, and if need be, make sure that your understanding of basic organic reactions is sound.

#### Schedule of Lectures

Introduction to Organic Mechanism: August 19 and 21.

Radical Substitution Reactions at the Saturated C Atom (Chapter 1): August 31 and September 2

Nucleophilic Substitution Reactions at the Saturated C Atom (Chapter 2): September 4 and 9.

Electrophilic Additions to the CC Double Bond (Chapter 3): September 11 and 14.

**First Exam (Chapters 1-3). September 18.**

$\beta$ -Eliminations (Chapter 4): September 16 and 18.

Substitution Reactions on Aromatic Compounds (Chapter 5) September 25 and 28.

Nucleophilic Substitution Reactions at the Carboxyl Carbon (Chapter 6). September 30 and October 5.

Carboxylic Compounds, Nitriles, and Their Interconversion (Chapter 7). October 7.

**Second (Mid-term) Exam (Chapters 4-7). October 9.**

Carbonyl Compounds and Heteroatom Nucleophiles and Their Interconversion (Chapter 8). October 12 and 14.

Additions of Heteroatom Nucleophiles to Carbonyl Compounds (Chapter 9). October 19 and 21.

Addition of Hydride Donors and of Organometallic Compounds to Carbonyl Compounds (Chapter 10).

October 23 and 26.

Conversion of Phosphorus- or Sulfur-Stabilized C Nucleophiles with Carbonyl Compounds: Addition-Induced Condensations. (Chapter 11). October 28 and 30.

Conversion of Phosphorus- or Sulfur-Stabilized C Nucleophiles with Carbonyl Compounds: Addition-Induced Condensations. (Chapter 12). November 2.

Chemistry of the Alkaline Earth Metal Enolates (Chapter 13). November 4.

**Third Exam (Chapters 8-13). November 6.**

Rearrangements (Chapter 14). November 9 and 11.

Thermal Cycloadditions (Chapter 15). November 13 and 16,

Transition Metal-Mediated Alkenylations, Arylations, and Alkynylations (Chapter 16). November 18 and 20.

Oxidations and Reductions (Chapter 17). November 23 and 25.

***Fourth Exam (Chapters 14-17) November 30.***

***Presentation (Selected original research papers). December 2 and 4.***

***Final Exam (Comprehensive) Friday, December 11. 10:00AM-NOON.***