Course Syllabus

Course Identification:

Course Number: CH 5420
Course Name: Advanced Organic Chemistry-Synthesis
Course Location: 402C Chemical Sciences Building
Class Times: M (1:00-2:00pm), F (1:00-3:00pm)
Prerequisites: CH 2420

Instructor Information:

Course Instructor: Dr. Lanrong Bi
Office Location: 402C Chemical Sciences Building
Telephone: Office: (906)-487-1868
E-mail: Lanrong@mtu.edu
Office Hours: MWF (4-5pm) and by appointment

Primary Textbook (Required):


Additional References Books:

  

  -The Logic of Chemical Synthesis,(1989) by E. J. Corey and X.-M. Cheng


Prerequisite: CH2420 or the equivalent.
Educational Goal:

The goal of this course is to develop a fundamental base of knowledge about organic reactions in the context synthesis. In addition to the modern synthetic methodologies, we will also present a number of representative categories of drugs, from which they have selected as examples many of the best-selling drugs on the market today. An introduction to each drug will be provided, as well as background to the biology, pharmacology, pharmacokinetics, and drug metabolism, followed by a detailed account of the drug synthesis.

Specific topics include:

1. Functional groups interconversion by substitution, including protection and deprotection;
2. Electrophilic additions to carbon-carbon multiple bonds;
3. Reduction of carbon-carbon multiple bonds, carbonyl groups and other functional groups;
4. Concerted cycloadditions, unimolecular rearrangements and thermal eliminations;
5. Oxidation;
6. Multistep synthesis;
7. Solid phase synthesis.
8. Modern drug synthesis

Grading policy:

<table>
<thead>
<tr>
<th>Grade Assignment</th>
<th>Points</th>
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<tbody>
<tr>
<td>Quizzes (50 points each)</td>
<td>300 pts</td>
</tr>
<tr>
<td>Mid-term Exam I:</td>
<td>150 pts</td>
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<tr>
<td>Mid-term Exam II:</td>
<td>150 pts</td>
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<tr>
<td>Oral Presentations:</td>
<td>100 pts</td>
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<tr>
<td>Final Exam:</td>
<td>300 pts</td>
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<tr>
<td>Total points</td>
<td>1000 pts</td>
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</tbody>
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MTU Grading system:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Course Points</th>
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<tbody>
<tr>
<td>A</td>
<td>930-1000 pts</td>
</tr>
<tr>
<td>AB</td>
<td>880-929 pts</td>
</tr>
<tr>
<td>B</td>
<td>820-879 pts</td>
</tr>
<tr>
<td>BC</td>
<td>760-819 pts</td>
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<tr>
<td>C</td>
<td>700-759 pts</td>
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No make-up quizzes will be given. No make-up exams will be given for unexcused absences. Official MTU excused absences are granted by the Office of Student Affairs (OSA).

Collaboration/Plagiarism Rules

Standards of academic conduct are set forth in the MTU Academic Integrity Code [http://www.studentaffairs.mtu.edu/dean/judicial/policies/academic_integrity.html]. When you registered for this course, you acknowledged your awareness of the Academic Integrity Code and you are obliged to become familiar with your rights and responsibilities as defined by this Code. Violations of the Code will result in disciplinary actions. Examples of violations include plagiarism or receiving inappropriate assistance on homework, quizzes, and/or exams.

Cell phones, Blackberries, iPods, PDAs, or any other electronic devices are not to be used in the classroom. Please make sure to bring a standard calculator with you to class. Note: graphing calculators are not permitted for use during exams. Calculators on other devices are strictly prohibited. Information exchanges on these devices during class are also prohibited and violate the Academic Integrity Code of Michigan Tech. Cheating is a very serious academic offense. Therefore, allegations of cheating will be referred to the Dean of Student Affairs for appropriate action. Please see me if you have any questions about academic violations as described in the Code or as they relate to particular requirements in this course.

University Policies

If you have a disability that could affect your performance in this class or that requires an accommodation under the Americans with Disabilities Act, please see me as soon as possible so that we can make appropriate arrangements. The Affirmative Action Office has asked that you be made aware of the following: Michigan Tech complies with all federal and state laws and regulations regarding discrimination, including the Americans with Disabilities Act of 1990. If you have a disability and need a reasonable accommodation for equal access to education or services at Michigan Tech, please call the Dean of Students Office, at 487-2212. For other concerns about discrimination, you may contact your advisor, department head or the Affirmative Action Office, at 487-3310
Academic Integrity:
http://www.studentaffairs.mtu.edu/dean/judicial/policies/academic_integrity.html

Affirmative Action:
http://www.admin.mtu.edu/aoa/

Disability Services:
http://www.admin.mtu.edu/urel/studenthandbook/student_services.html#disability

Equal Opportunity Statement: