**CHEM 221: FUNDAMENTALS IN ORGANIC CHEMISTRY**

**July 10, 2017 - August 4, 2017**

**Description**
This distance-learning course is designed to bridge the gap between general and organic chemistry and to prepare students better for CHEM 322a. The material and pace are designed to develop a foundation in organic chemistry (as opposed to the majority of American college sophomores who receive little or no exposure). CHEM 221 is also recommended for those who struggled with general chemistry or who may have not taken it for a few years. This class will focus on problem-solving skills and understanding the language of organic chemistry.

**Instructor**
Dr. Rebecca Broyer  
rbroyer@usc.edu  
(213) 740-0620

**Office Hours**
Virtual office hours will be held exclusively online by appointment.

**Course Website**
https://chemmac1.usc.edu/221/

**Web and Technical Issues**
Dr. Bruno Herreros  
herreros@usc.edu

**Prerequisite**
A passing grade in CHEM 105b (second semester general chemistry) or equivalent course.

**Credit**
2 units, P/NP; this course cannot be taken for major or general education credit.

**Lecture**
MTWTh 1:00 – 2:35 pm, exclusively online

**Computing**
An internet connection is required. Webcam, headset and microphone are suggested for use during office hours. Online assignments are submitted exclusively via the course website. Further computing details can be found on the course webpage.

**Materials**
There is no required textbook for this class. All required materials are provided electronically.
Optional
i. Organic Chemistry I as a Second Language: Translating the Basic Concepts, by Klein

Materials
ii. Any molecular modeling kit

The Klein text is very inexpensive and highly recommended. It is highly recommended in CHEM 322a. Molecular models are very useful for understanding stereochemistry and some professors allow you to use them during exams.

Assignments
Assignments include online homework, web quizzes and the final exam. Students who miss three or more assignments or who miss the final will automatically receive a grade of No Credit for the course regardless of their performance.

Polling
Daily in-class participation will be monitored using our online (no clicker is needed) polling system. Students receive 5 points for every lecture in which they participate in the polling, regardless if answers are correct. Responses will only be recorded if you are logged-in live during the class; you will not be awarded points if you view the video of the lecture at a later time.

Homework
Homework is assigned Mondays through Wednesdays and reflects material covered in lecture each day. Homework assignments unlock at the end of a lecture and must be submitted to the class website within 48 hours after they open. Late assignments will not be accepted for any reason.

Webquizzes
Four weekly multiple-choice webquizzes will be given to assess your understanding of the course material. Webquizzes open on Thursday 2:30 pm and must be submitted by Friday at 11:59 pm PST. You may only open a webquiz once; once opened a 60-minute countdown immediately begins that cannot be paused, even if you log off.

Final Exam
The final exam will be administered online Friday August 4, 2017 from 1:00 pm -3:00 pm PST. You must be logged in at this time only in order to take the exam. The final is online and has a multiple-choice format.

Grading

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
<th>Description</th>
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<tbody>
<tr>
<td>Participation</td>
<td>5 points</td>
<td>16 classes</td>
</tr>
<tr>
<td>Homework</td>
<td>20 points</td>
<td>12 assignments</td>
</tr>
<tr>
<td>Web Quizzes</td>
<td>40 points</td>
<td>4 quizzes</td>
</tr>
<tr>
<td>Final</td>
<td>100 points</td>
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</tr>
<tr>
<td>Total</td>
<td>580 points</td>
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You must earn 290 points in order to pass this class.
Academic integrity principles of
academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one’s own academic work from misuse by others as well as to avoid using another’s work as one’s own. All students are expected to understand and abide by these principles. Scampus, the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A: http://www.usc.edu/dept/publications/SCAMPUS/gov/. Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at: http://www.usc.edu/student-affairs/SJACS/.

Disabilities
Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to Dr. Broyer as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m.–5:00 p.m., Monday through Friday. DSP’s phone number is (213) 740-0776.

Important Dates
Last day to add: Wednesday, July 12, 2017
Last day to drop without a “W”: Wednesday, July 12, 2017
Last day to drop with a “W”: Thursday, July 27, 2017
Final Examination: online Friday, August 4, 2017 1:00 pm-3:00 pm PST
### Tentative Schedule

<table>
<thead>
<tr>
<th></th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 10</td>
<td>Introduction Lewis Structures</td>
<td>Hybridization VSEPR Theory</td>
<td>Structural Formulas</td>
<td>Molecular Geometry and Polarity</td>
</tr>
<tr>
<td>to July 13</td>
<td><strong>HW #1</strong></td>
<td></td>
<td></td>
<td><strong>QUIZ 1</strong></td>
</tr>
<tr>
<td>July 17</td>
<td>Arrow Pushing</td>
<td>Resonance</td>
<td>Acids and Bases</td>
<td>Alkanes and Cycloalkanes</td>
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<tr>
<td>to July 20</td>
<td><strong>HW #4</strong></td>
<td></td>
<td></td>
<td><strong>QUIZ 2</strong></td>
</tr>
<tr>
<td>July 24</td>
<td>Functional Groups</td>
<td>IUPAC</td>
<td>Conformations</td>
<td>Stereochemistry R/S Notation</td>
</tr>
<tr>
<td>to July 27</td>
<td><strong>HW #7</strong></td>
<td></td>
<td></td>
<td><strong>QUIZ 3</strong></td>
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<tr>
<td>July 31</td>
<td>Stereochemistry Isomerism</td>
<td>Substitution</td>
<td>Elimination</td>
<td>NMR</td>
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<tr>
<td>to Aug 3</td>
<td><strong>HW #10</strong></td>
<td><strong>HW #11</strong></td>
<td><strong>HW #12</strong></td>
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</tbody>
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### More Problems

The following are suggested practice problems from the Klein text listed by lecture number. These will greatly improve your understanding of the course material, however they will be neither collected nor graded.

1. \(1.34 - 45, 1.47 - 52, 1.54 - 1.68\)
2. \(4.2 - 4.8, 4.10 - 4.17\)
3. \(1.2 - 1.11, 1.13 - 1.24\)
4. \(2.2 - 2.12\)
5. \(2.14 - 2.19, 2.21 - 2.28, 2.32 - 2.73\)
6. \(3.2 - 3.5, 3.7 - 3.12, 3.16, 3.19 - 3.31, 3.33, 3.35 - 3.37, 3.39 - 3.46\)
7. \(5.19 - 5.26, 5.29 - 5.34, 5.36, 5.37, 5.47, 5.48, 5.50 - 5.55, 5.57 - 5.59, 5.61, 5.65, 5.66\)
8. \(6.2 - 6.7, 6.9, 6.10 - 6.14, 6.16 - 6.21, 6.24 - 6.29, 6.31 - 6.36, 6.38 - 6.45\)
11. \(8.11, 8.12, 10.1 - 10.4, 10.6 - 10.9, 10.11 - 10.14, 10.23 - 10.27, 10.29 - 10.31, 10.33 - 10.36\)