Course Description

This course will continue to build upon the important concepts learned in the prerequisite course, CHEM 210, with an emphasis on reactions mechanisms and organic synthesis. The course will begin with conceptually new material that will be applied in the laboratory course, namely, the elucidation of the structures of organic compounds using mass spectrometry, infrared spectroscopy and nuclear magnetic resonance spectroscopy. The majority of the new material is concerned with the chemistry of carbonyl compounds and includes: 1) the nucleophilic addition reactions of ketones and aldehydes; 2) nucleophilic acyl substitution reactions of acid chlorides, anhydrides, esters and amides; 3) carbonyl (-substitution reactions and 4) carbonyl condensation.

Academic Integrity Policy

Penn State and your professor put a very high value on academic integrity, and violations are not tolerated. More information on academic integrity can be found at:

http://www.pserie.psu.edu/faculty/academics/integrity.htm
Exams
Exams: 4 x 100 pts = 400 pts

The final exam given during the time assigned by the registrar and is cumulative and comprehensive.

Exam dates and covered material are subject to change

Review Sessions
Review sessions will be scheduled with the students prior to all exams.

Course Schedule

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Electrophilic Addition II</td>
</tr>
<tr>
<td>15</td>
<td>IR and UV Spectroscopy</td>
</tr>
<tr>
<td>16</td>
<td>NMR</td>
</tr>
<tr>
<td>17</td>
<td>Nucleophilic Addition to π-Bonds 1</td>
</tr>
<tr>
<td>18</td>
<td>Nucleophilic Addition to π-Bonds 2</td>
</tr>
<tr>
<td>19</td>
<td>Organic Synth II</td>
</tr>
<tr>
<td>20</td>
<td>Nucleophilic Addition-Elimination 1</td>
</tr>
<tr>
<td>21</td>
<td>Nucleophilic Addition-Elimination 2</td>
</tr>
<tr>
<td>14</td>
<td>Extended π-Systems, Conjugation and Aromaticity</td>
</tr>
<tr>
<td>22</td>
<td>Electrophilic Aromatic Substitution 1</td>
</tr>
<tr>
<td>23</td>
<td>Electrophilic Aromatic Substitution 2</td>
</tr>
<tr>
<td>24</td>
<td>Diels-Alder and Other Pericyclic Reactions</td>
</tr>
<tr>
<td></td>
<td>Exam 1</td>
</tr>
<tr>
<td></td>
<td>Exam 2</td>
</tr>
<tr>
<td></td>
<td>Exam 3</td>
</tr>
<tr>
<td></td>
<td>Exam 4</td>
</tr>
</tbody>
</table>

Grade Scale
The following grading scale will be used. If the class average falls below a C+ mark, an adjustment may be made for grade cutoffs. The 55% grade for passing is firm:

A 90-100
A- 80-89
B+ 77-79
B 73-76
B- 70-72
C+ 67-69
C 60-66
D 55-59
F 0-54

Course Policies
- It is assumed that you read each chapter before we cover the material and perform the minimum problem sets immediately thereafter.
- A study workshop will be given to review the material for each exam. Usually two are scheduled in the days leading up to the exam.
- During exams you are allowed two writing utensils only. All book bags and electronic devices must be left at the front or rear of the room. Brimmed hats must be removed.
- You have one week from the in-class turn-back of any exam to bring errors in grading or tabulation to my attention.


The Solutions Manual is included.

Recommended Materials: Use of a molecular model set is strongly encouraged. One will be used to demonstrate concepts throughout the semester.

Course Website: All course materials available on the CHEM 212 page of the instructor’s website and Canvas®

http://chemistry.bd.psu.edu/justik/CHEM212.html

It is assumed that you check your PSU e-mail daily for course announcements.
Tips for Success
Organic chemistry is perceived as one of the most difficult courses taken during an undergraduate degree program, but there are ways to increase your performance and maybe even enjoyment of the course:

- If you are not writing, you are NOT studying.

- Organic chemistry is more a foreign language than anything else. It must be practiced every day—writing, reviewing and working problems!

- Do not miss any material or “relax” your study habits—this is a fifteen-week marathon and every effort is required!

- Study groups are helpful and encouraged—cram sessions are typically not helpful and discouraged!

- After each lecture—rewrite your notes. You will be surprised how well this simple tool works, at least to make sure your notes are legible and organized should you decide to cram!

- Do not emphasize memorization—this is a course of concepts and applications! Most wrong answers on exams are convoluted material that was memorized.

- Students often complain they study and study and never assimilate the material—remember, if you study the same way each time, you will get the same result for good or bad!

  *See Dr. Justik if you have any problems—that is why he is here!*
REQUIRED

Academic Integrity
Academic integrity is a basic guiding principle for all academic activity at the University, and all members of the community are expected to adhere to this principle. Specifically, academic integrity is the pursuit of scholarly activity in an open, honest, and responsible manner. It includes a commitment not to engage in or tolerate acts of falsification, misrepresentation, or deception. Such acts violate the fundamental ethical principles of the University community and undermine the efforts of others.

Violations of academic integrity are not tolerated at Penn State Behrend. Violators will receive academic sanctions and may receive disciplinary sanctions, including the awarding of an XF grade. In cases such as these, an XF grade is recorded on the transcript and states that failure of the course was due to an act of academic dishonesty. All acts of academic dishonesty are recorded so those repeat offenders can be sanctioned accordingly.

For more information: http://behrend.psu.edu/for-faculty-staff/faculty-resources/academic-integrity

Disabilities and Learning Differences
Penn State is strongly committed to providing full access to its programs and services for all individuals. The University encourages academically qualified students with disabilities to take advantage of the educational programs and accommodations offered at Penn State Behrend.

For more information: http://behrend.psu.edu/student-life/educational-equity-and-diversity/student-resources/students-with-disabilities-and-learning-differences

Educational Equity Concerns
Penn State takes great pride to foster a diverse and inclusive environment for students, faculty, and staff. Acts of intolerance, discrimination, harassment, and/or incivility due to age, ancestry, color, disability, gender, national origin, race, religious belief, sexual orientation, or veteran status are not tolerated and can be reported through Educational Equity at the Report Bias site: http://equity.psu.edu/reportbias/statement.

Counseling and Psychological Services
Students with academic concerns related to this course should contact the instructor in person or via email. Students also may occasionally have personal issues that arise in the course of pursuing higher education that may interfere with their academic performance. If you find yourself facing problems affecting your coursework, you are encouraged to talk with an instructor and to seek confidential assistance at the Penn State Behrend Personal Counseling Services at (814) 898-6504.

For more information: http://psbehrend.psu.edu/student-life/student-services/personal-counseling

Title IX
Penn State is committed to fostering an environment free from sexual or gender-based harassment or misconduct. The Office of Sexual Misconduct Prevention and Response ensures compliance with Title IX, a federal law that prohibits discrimination based on the sex or gender of employees and students. Behaviors including sexual harassment, sexual misconduct, dating violence, domestic violence, and stalking, as well as retaliation for reporting any of these acts violate Title IX and are not tolerated. The University is also committed to providing support to those who may have been impacted by incidents of sexual or gender-based harassment or misconduct and may provide various resources and support services to individuals who have experienced one of these incidents.

For more information: http://titleix.psu.edu/ or http://titleix.psu.edu/resources-penn-state-erie-the-behrend-college/

OPTIONAL

Copyright of Class Materials
You may not share any information from this course (including notes and assignments) with others who are not currently registered for the course, nor post such information electronically without the permission of the instructor—this includes online note-taking/note-sharing services (See Penn State Administrative Policy AD-40). Unless you have my permission, you risk disciplinary sanctions.