Chemistry 748 Physical Organic Chemistry –Spring 2011: Syllabus

General:
Instructor: Dr. Alexander Arnold
Office Room: 272c Chemistry Building
Office Hours: By appointment
Email address: arnold2@uwm.edu
Lecture: MWF 10:00-10:50 am, room: CHM 123
Official start date: Monday, January 24th 2011
Pre-requisite: Graduate

Description:
The goal of this course is to mediate the principles of the relationships between structure and reactivity of organic molecules. To achieve this goal, we will discuss several chapters of the textbook “Modern Physical Organic Chemistry”. These will include a review on structure, energy, and solvation; pKa and the influence of substituents on reactivity and activity; and specialty topics such as photochemistry, supramolecular chemistry, and polymerization. The course is designed to dissect the different forces of molecules to increase the understanding of reactivity. This knowledge will help the organic chemistry student to pick appropriate solvents and reactants for chemical conversion and stimulate new ideas applicable for their research. The student will have the opportunity to present an important topic of physical organic chemistry. Additionally, we will discuss selected chemistry and biochemistry highlights.

Course Load:
The student is required to attend class 748 scheduled for three times 50 minutes per week and urged to spend at least the same amount of time to read the textbook and study the student problems described in the book.

Lecture:
You presence is mandatory for this course. Excuses are expected to have a valid reason (medical, scholar ...). Frequent absence will result in a diminished grade. Taking lecture notes is an essential skill, which is too often neglected. Part of the learning process involves thinking about what is being said in lecture, writing it down, and even re-writing it to clarify what you have heard. I may ask specific questions on the final exam from lectures, based on material that you will not find in the book.

Homework:
There will be no homework.

Seminar:
Each student will prepare one seminar chosen from the seminar topics of this syllabus. The presentation is expected to be 25-30 minutes. Subsequently, there will be a discussion.

Mid-term exam:
There will be no homework.

Final Exam:
The final exam consists of several questions and the students have 50 minutes to solve the problems summarizing the material discussed in the class. This exam is mandatory!
Grading:
Seminar = 50 pts
Final Exam = 50 pts
Total = 100 pts

Textbook:

Policies:
UWM: You must follow the policies and procedures outlined in the current Schedule of Classes.
See: http://www.uwm.edu/Dept/SecU/SyllabusLink.pdf
Department of Chemistry: You are expected to fully understand the policies posted on the bulletin boards across from CHM 195 and adjacent to CHM 164.
Drop, Section Change: Most changes can be made on PAWS. Make sure you check-out of laboratory to avoid having a “hold” placed on your records.
Incomplete: An incomplete can be given only to a student who has been doing satisfactory (C or better) work but who is unable to continue attending the course for a reason judged valid. The request for an Incomplete must be accompanied by documentation.
Academic Dishonesty: Cheating on an examination or other graded material will result in a grade of zero as a minimum consequence. Failure in the course and referral to the Dean may also occur. In short, academic dishonesty in any form will not be tolerated.

Tentative Course Outline:
Below is an approximate outline. Significant amount of class time will be dedicated to discussions, thus it is hard to anticipate how far we will be able to advance, and how deep will the material be covered.

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday, January 24, 2011</td>
<td>welcome/syllabus</td>
</tr>
<tr>
<td>Wednesday, January 26, 2011</td>
<td>1.1</td>
</tr>
<tr>
<td>Friday, January 28, 2011</td>
<td>1.2-1.3</td>
</tr>
<tr>
<td>Monday, January 31, 2011</td>
<td>1.3-1.4</td>
</tr>
<tr>
<td>Wednesday, February 02, 2011</td>
<td>exercise</td>
</tr>
<tr>
<td>Friday, February 04, 2011</td>
<td>Carbene ligands in organic chemistry (seminar)</td>
</tr>
<tr>
<td>Monday, February 07, 2011</td>
<td>2.1</td>
</tr>
<tr>
<td>Wednesday, February 09, 2011</td>
<td>2.2</td>
</tr>
<tr>
<td>Friday, February 11, 2011</td>
<td>2.3</td>
</tr>
<tr>
<td>Monday, February 14, 2011</td>
<td>2.4</td>
</tr>
<tr>
<td>Wednesday, February 16, 2011</td>
<td>2.5-2.6</td>
</tr>
<tr>
<td>Friday, February 18, 2011</td>
<td>exercise</td>
</tr>
<tr>
<td>Monday, February 21, 2011</td>
<td>Adamantane-Synthesis, Structure, and Application (seminar)</td>
</tr>
<tr>
<td>Wednesday, February 23, 2011</td>
<td>3.1</td>
</tr>
<tr>
<td>Friday, February 25, 2011</td>
<td>3.2</td>
</tr>
<tr>
<td>Monday, February 28, 2011</td>
<td>3.3</td>
</tr>
<tr>
<td>Wednesday, March 02, 2011</td>
<td>exercise</td>
</tr>
<tr>
<td>Friday, March 04, 2011</td>
<td>Surfactants-Aggregation,Forces, and Application (seminar)</td>
</tr>
<tr>
<td>Monday, March 07, 2011</td>
<td>4.1</td>
</tr>
</tbody>
</table>
Wednesday, March 09, 2011  4.2  
Friday, March 11, 2011  4.3  
Monday, March 14, 2011  exercise  
Wednesday, March 16, 2011  Cyclodextrines-Synthesis and Application (seminar)  
Friday, March 18, 2011  5.1-5.2  
Monday, March 21, 2011  5.3-5.4  
Wednesday, March 23, 2011  5.5  
Friday, March 25, 2011  exercise  
Monday, March 28, 2011  Organic Superbases-Synthesis and Application (seminar)  
Wednesday, March 30, 2011  recess  
Friday, April 01, 2011  recess  
Monday, April 04, 2011  recess  
Wednesday, April 06, 2011  8.1  
Friday, April 08, 2011  8.1-8.2  
Monday, April 11, 2011  8.3  
Wednesday, April 13, 2011  8.4  
Friday, April 15, 2011  exercise  
Monday, April 18, 2011  Analysis of Phenanthreneaminoalkylcarbinol Antimalarials SAR using Hansch equation (seminar)  
Wednesday, April 20, 2011  16.1  
Friday, April 22, 2011  16.2  
Monday, April 25, 2011  16.3  
Wednesday, April 27, 2011  16.3  
Friday, April 29, 2011  16.4  
Monday, May 02, 2011  FRET and TR-FRET-Molecular Pairs and application (seminar)  
Wednesday, May 04, 2011  exercise  
Friday, May 06, 2011  13.1  
Monday, May 09, 2011  13.2  
Wednesday, May 11, 2011  exercise  
Friday, May 13, 2011  Study Day  
Monday, May 16, 2011  final

Disclaimer:
Teaching policies and regulations for this course are not open for discussion or negotiation. This syllabus has been constructed to be as complete as possible but is by no means a binding document. I reserve the right to alter policies and regulations as needed.