

# Chemistry 647 Physical Methods of Organic Chemistry –Spring 2019: Syllabus

## General:

Instructor: Dr. Alexander Arnold

Office Room: 372c Chemistry Building

Office Hours: By appointment

Email address: [arnold2@uwm.edu](mailto:arnold2@uwm.edu)

Lecture: MW 3:30-4:45, room: CHM169

Official start date: September 4th, 2019

Pre-requirement: jr st, a grade of C or better in Chem 345(P), 346(P), 524(P).

## Description:

The goal of the course is to develop skills necessary to determine two-dimensional structures of organic molecules based on data acquired by different spectroscopic techniques. To achieve this goal, you will need to spend a lot of time (much more time than you will spend actually reading the textbook!) interpreting spectra recorded with different techniques. The comparison of your interpretations will enable you to identify the strengths and weaknesses of each technique. The second but equally important goal is to provide a theoretical background on the most important spectroscopic techniques, especially nuclear magnetic resonance (NMR). This course will prepare you to characterize organic molecules you might be synthesizing during your undergraduate and graduate research. Drawing the right conclusions based on recorded spectra is the key to assigning the correct structure and being a successful researcher.

## Course Load:

The student is required to attend class 647 scheduled for 2x75 minutes per week and urged to spend at least the double amount of time to read the textbook and study the student problems described in the book.

## Lecture:

I will not monitor your attendance during lecture. However, much of the material on exams will not be found in the text and your lack of attendance especially during the quiz will result in a diminished grade. In addition, 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 exams from lectures, based on material that you will not find in the book.

## Quiz:

Some classes will start with a short quiz. You must be in attendance within the first 10 minutes of class in order to take the quiz. During the quiz students have 10 minutes time to solve all problems.

## Mid-term exam:

The mid-term exam consists of several questions and the students have 50 minutes to solve the problems summarizing the material discussed so far.

## 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!

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All exams and some quizzes will be open notes and open book, however, you will not be allowed to use books, which are essentially the lists of organic compounds, such as, for example, an Aldrich catalog or a Dictionary of Organic Compounds.

### Grading:

6 quizzes at 5 pts each = 30 pts

mid-term exams = 25 pts

Final Exam = 45 pts

Total = 200 pts

### Textbook:

Spectrometric Identification of Organic Compounds "Robert Silverstein, Francis X. Webster and David J. Kiemle ISBN 0-471-39362-2

### 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 problem solving, thus it is hard to anticipate how far we will be able to advance, and how deep will the material be covered.

Nr	Day	Reading	Quiz, Exams
1	Wednesday, 4th September	Chapter 1	
2	Monday, 9th September		
3	Wednesday, 11th September	problems	Quiz
4	Monday, 16th September	problems	
5	Wednesday, 18th September	Chapter 2	
6	Monday, 23th September		
7	Wednesday, 25th September	problems	Quiz
8	Monday, 30th September	problems	
9	Wednesday, 2nd October	problems	
10	Monday, 7th October	Chapter 3	
11	Wednesday, 9th October		
12	Monday, 14th October	problems	Quiz

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<b>13</b>	Wednesday, 16th October	<b>problems</b>	
<b>14</b>	Monday, 21st October	<b>Chapter 4</b>	
<b>15</b>	Wednesday, 23th October		<b>Quiz</b>
<b>16</b>	Monday, 28th October	<b>problems</b>	
<b>17</b>	Wednesday, 30th October	<b>problems</b>	
<b>18</b>	Monday, 4th November	<b>Mid term</b>	
<b>19</b>	Wednesday, 6th November	<b>Chapter 5</b>	
<b>20</b>	Monday, 11th November		
<b>21</b>	Wednesday, 13th November	<b>problems</b>	<b>Quiz</b>
<b>22</b>	Monday, 18th November	<b>problems</b>	
<b>23</b>	Wednesday, 20th November	<b>problems</b>	
<b>24</b>	Monday, 25th November	<b>chapter 6</b>	
<b>25</b>	Wednesday, 27th November	<b>recess</b>	
<b>26</b>	Monday, 2nd December	<b>problems</b>	<b>Quiz</b>
<b>27</b>	Wednesday, 4th December	<b>Review</b>	
<b>28</b>	Monday, 9th December	<b>Review</b>	
<b>29</b>	Wednesday, 11 December	<b>Review</b>	
<b>31</b>			<b>Final</b>

### 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.