

Organic Chemistry  
Chemistry 142  
Spring 2014

Alexander (Sandy) Wurthmann  
Office: A223 Cook Physical Sciences tel: 656-8999  
[Alexander.Wurthmann@uvm.edu](mailto:Alexander.Wurthmann@uvm.edu)

Welcome back! This semester we will continue to explore the connections and differences between the common organic functional groups.

**LECTURES:** 10:40AM-11:30AM M/W/F  
4:05PM-5:20PM M/W

**OFFICE HOURS:** 1:30PM- 2:30PM, M/W/F or by appt.

**AIMS:**

At the end of Chem142 a successful student will be able to answer questions on the following themes:-

I: Recognize the atoms and bonding present in common functional groups, their resultant chemical properties and likely reactions.

II:- Be able to create rational curved-arrow mechanisms to predict the likely products of reactions.

Students that can combine these skills will be most successful, as this skillset will allow them to communicate with scientists in many other fields.

**EXAM DATES AND TIMES:**

Thursday 20<sup>th</sup> February      **EXAM 1, 5:30-8:15PM**

Thursday 27<sup>th</sup> March      **EXAM 2, 5:30-8:15PM**

Thursday 17<sup>th</sup> April      **EXAM 3, 5:30-8:15PM**

Exam locations will be assigned by first letter of your last name. MLS 235, Fleming 101 and Angell B106.

**FINAL EXAM :**      **Morning Lecture Section A:** May 9<sup>th</sup> 10:30AM Angell B106

**Afternoon Lecture Section B:** May 2<sup>nd</sup> 1:30PM Angell B106

Any conflicts with an exam date or time must be resolved a week in advance. Alternate exam times must be prior to scheduled exam dates and times. No late exams will be offered for any reason.

**THURSDAY EVENING REVIEW:**

Each Friday I will email a few problems to be discussed at the following Thursday Evening Review. This is a perfect opportunity to practice problems and work through some of the tricky points in regards to the new concepts. The questions are not graded but many students find these review sessions very helpful. I usually bring donuts/cookies and "organic" fruit for volunteers!! The atmosphere is a little less formal and more conversational 5:30pm~6:30pm (approx. 1hr) Angell B106.

## **LAB:**

Confirm your lab time and bring any scheduling conflicts to me as soon as possible.

For Schedule see the end of this syllabus.

**Attendance:** Students must attend the lab section to which you are assigned. Unexcused absences will result in a ZERO graded for the lab experiment. If more than 2 labs are missed, for any reason (even excused absences), you will receive an **F** for the whole course. An incomplete can only be granted by the Dean of the college in which you are enrolled.

**Breakage Card:** A breakage card (\$40.00) must be purchased from the first floor stockroom, A-143 Cook, prior to your first lab. It is advisable to purchase this card as soon as possible in order to avoid having to wait in yet another line. The \$40.00 is refunded at the end of the semester if you don't break anything!! Remember your card as it is your deposit for additional pieces of equipment required week by week.

**Safety eyewear:** OSHA approved safety glasses or goggles must be worn by everyone once any experiment has started in the bench areas of the lab. Students not observing this rule will receive a ZERO for that experiment. Eye protection is extremely important. Safety eyewear can be purchased at the UVM bookstore. CONTACT LENSES are a potential health hazard and should only be worn in the lab if you have no other type of corrective lenses. If you wear contact lenses you must wear goggles with them, and inform your TA.

**Footwear:** Only shoes that cover the toes are permitted in the lab. Sandals and open-toed shoes are not permitted.

## **TEXTS**

“*Organic Chemistry*”, Klein, 1st edition, Wiley (*required*)

“*Organic Chemistry*”, Study guide by same author (*strongly recommended*)

“*Organic Chemistry II*” As a Second Language, David Klein, any edition, Wiley Publishers (*recommended*)

Lab Manual available from 1<sup>st</sup> floor stockroom of Cook Building (*required*)

## **EQUIPMENT:**

Molecular Structure Model Kit, HGS (*strongly recommended*)

Lab Notebook (*required*)

Lab coat (*optional*)

Lab safety glasses (*required*)

Pencil, and Extra fine permanent marker (“Sharpie”) (*recommended*)

Ruler, calculator.

### LAB SCHEDULE:

Week Beginning	Experiment	Page
Jan 13-Jan 20	No Labs: Purchase Breakage Card, Lab Manual, Safety Glasses	
Jan 27	Check-in AND Synthesis of an Alkyne <a href="http://www.uvm.edu/~awurthma/LabVideos/AlkynefromalkeneCC.mov">http://www.uvm.edu/~awurthma/LabVideos/AlkynefromalkeneCC.mov</a>	9
Feb 3	Diels-Alder <a href="http://www.uvm.edu/~awurthma/LabVideos/diels_alder_CC.mov">http://www.uvm.edu/~awurthma/LabVideos/diels_alder_CC.mov</a>	12
Feb 10	Nitration of Methyl Benzoate <a href="http://www.uvm.edu/~awurthma/LabVideos/nitr_benz_CC.mov">http://www.uvm.edu/~awurthma/LabVideos/nitr_benz_CC.mov</a>	15
Feb 17	No labs President's Day Holiday	
Feb 24	Generation and Reaction of an Organometallic: Part I <a href="http://www.uvm.edu/~awurthma/LabVideos/grignard_a_CC.mov">http://www.uvm.edu/~awurthma/LabVideos/grignard_a_CC.mov</a>	18
Mar 3	No labs Spring Break	
Mar 10	Organometallic Part II <a href="http://www.uvm.edu/~awurthma/LabVideos/grignard_b_CC.mov">http://www.uvm.edu/~awurthma/LabVideos/grignard_b_CC.mov</a>	
Mar 17	The Wittig Reaction <a href="http://www.uvm.edu/~awurthma/LabVideos/wittig_CC.mov">http://www.uvm.edu/~awurthma/LabVideos/wittig_CC.mov</a>	21
Mar 24	Solventless Aldol	24
Mar 31	Production of Biodiesel	26
Apr 7	Synthesis of Aspirin	28
Apr 14	Submit last report and Check-out	
Apr 21	STANDARDIZED ACS EXAM	

### COURSE GRADE:

The course grade will be based on three mid-semester exams and a compulsory, cumulative final exam. **Of the three mid-terms the lowest grade will be dropped.** No curves are applied to the mid-semester exams and the class average for the exams may vary depending on the complexity of the material. Try your best on all the exams. No late exams. Attendance is not required and zero can be considered as your lowest grade.

The Standardized American Chemical Society (ACS) Exam will be offered as a optional Final. You can take both the **optional ACS Exam AND the required Chem 142 Final**. The higher grade will be taken for your course grade. The Chem 142 Final is required for everyone regardless of if you take the ACS exam.

Your exams will each constitute 25% of your grade, providing 75% of your course grade. The lab component of the course will deliver the remaining 25%.

3 exams (2 mid-terms and the Final/ACS)	75%
lab grade	<u>25%</u>
	100%