

**SYLLABUS CHEMISTRY 5710**  
*ADVANCED ORGANIC CHEMISTRY LABORATORY*  
T, Th 9:40AM-10:30AM HEB 2006

**Instructor:** Dr. Jon Rainier  
**Office:** 3216 HEB North  
**Phone:** (801) 581-4954  
**Email:** [rainier@chem.utah.edu](mailto:rainier@chem.utah.edu)

**Office Hours:** Monday (in office) 10:00-11:00 AM; Tuesday (in office) 2:00-3:00 PM;  
Tuesday (virtual (via Canvas)) 5:00-6:00 PM or by appointment

**Administrative Assistant:** Tomi Carr, 3220 HEB North  
**Phone:** (801) 581-6689  
**Email:** [tcarr@chem.utah.edu](mailto:tcarr@chem.utah.edu)

**Class Objective:** To work towards gaining a theoretical and practical understanding of organic chemistry.

**Methods:** lectures, problem solving, laboratory experiments, laboratory reports,

**Prerequisites:** Organic Chemistry II and Lab (Chem 2320 and Chem 2325)

<b>DATES (Approximate (except for midterm and final exam))</b>	<b>TOPIC</b>
August 21	Intro; lab notebooks; lab reports
August 23	Tryptophan Experiment
August 28	SciFinder and other Databases (Nesdill)
August 30	Practical Mass Spectrometry (Muller) and NMR
September 4	Chromatography/IR/UV/Optical Rotation
September 6	NMR interpretation
September 11	NMR interpretation (cont)
September 13	Mass Spectrometry (Muller)
<b>September 18</b>	<b>EXAM 1</b>
September 20	Organic Synthesis 1
September 25	Organic Synthesis 2
September 27	Organic Synthesis 3
October 2	Review
<b>October 4</b>	<b>EXAM 2</b>

- Labs will begin the first week of class (beginning on August 22) with check-in.

**Recommended Texts** (Any edition of these texts is fine (similar texts are also fine):

1. "Modern Organic Synthesis" by George S. Zweifel, Michael H. Nantz, Freeman, 2007.
2. "Spectrometric Identification of Organic Compounds" by Silverstein, Wiley.
3. "The Organic Chemistry Lab Survival Manual" Zubrick, Wiley.

**Examinations:** Examination questions will involve short answer descriptions and fill-in-the-blank problem solving. *You must take your exams in pencil.*

**Grading:**

**Exams:** 200 points (100 each)

**Experimental Write-up:** 200 points (due 10/15)

**Experimentals:** 60 points (complete experimentals, i.e. a detailed description of your reaction, spectral characterization of your product ( $^1\text{H}$  NMR,  $^{13}\text{C}$  NMR, IR, mass spec., UV, LC data, melting point (if necessary) and optical rotation) along with copies of spectra are due at varying times during the semester):

- a. Trp(OCH<sub>3</sub>) formation, due the week of Sep. 10 (10 points)
- b. Carbamate formation, due the week of Sep. 17 (20 points)
- c. fully protected Trp(OCH<sub>3</sub>), due the week of Sep. 24 (30 points)

**Lab Notebook:** 100 points

**Total:** 560 points

*There may be opportunities for extra credit-more about this later.*

**Makeup policy:**

There will be no makeup examinations for this class. If you anticipate missing an exam (valid excuses only), you must clear this in advance. All make up exams will be oral exams.

You must attend your scheduled laboratory sessions. In extraordinary cases approval may be given (by Rainier) to carry out experiments outside of your scheduled lab. The makeup laboratories for this class will be held on Saturday mornings from 8:00 AM to 12:00 PM beginning September 9.

**Equipment: Required:**

- (1) Laboratory goggles or approved safety glasses.
- (2) A bound laboratory notebook.
- (3) A lab coat.
- (4) Dishwashing gloves (for cleaning glassware, benchtop and hood)

**Safety:**

1. Safety glasses and laboratory coats must be worn at all times.
2. Wearing contact lenses is not permitted.
3. You may not wear open-toed shoes or sandals.
4. Report any injury to your TA
5. Legs must be covered. Shorts or short dresses are not acceptable. Tank tops and muscle shirts are not permitted.
6. Students are not allowed in lab without the TA.
7. Eating, drinking, and smoking are prohibited in the laboratory.
8. Solvents, solids, and sharps must be disposed of properly (in the appropriate waste container). If you are not sure how to dispose of something, consult your TA.
9. Many organic chemicals pose potential hazards to the fetus or to young children. Women who are pregnant, nursing, or who suspect they may be pregnant should contact me (Rainier). They are also strongly advised to consult with their obstetrician, and if possible to take this course at a later time.
10. Come to lab prepared. Be neat and courteous to others. Clean up after yourself.

**Student Code:** By submitting an assignment or laboratory report, you are representing that it is your own work and that you have followed the rules associated with the assignment. Incidents of academic misconduct (including cheating, plagiarizing, research misconduct, misrepresenting one's work, and/or inappropriately collaborating on an assignment) will be dealt with severely, in accordance with the Student Code (<http://www.admin.utah.edu/ppmanual/8/8-10.html>). A single instance of academic misconduct may result in a failing grade for the course. Multiple instances of academic misconduct may result in probation, suspension or dismissal from a program, suspension or dismissal from the University, or revocation of a degree or certificate.