Course Instructor: Dr. Megan McClory  
Office: Mudd 233  
Office Hours: Tuesday 1 – 2 pm  
Email: meganmcclory@stanford.edu

Teaching Assistants  
Binhong Lin (binhong@stanford.edu)  MUDD 177  
Nick Chiappi (nchiappi@stanford.edu)  MUDD 205  
Sachie Weber (sachiew@stanford.edu)  MUDD 215

TA Office Hours: Thursday & Friday 1 – 2 pm (Mudd Lobby)

CHEM 3L Lecture & Laboratory Schedule

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<thead>
<tr>
<th>Week 1</th>
<th>Monday</th>
<th>Wednesday</th>
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<tbody>
<tr>
<td>Lecture:</td>
<td>1H NMR</td>
<td>Lecture: 1H NMR</td>
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<tr>
<td>Lab:</td>
<td>Synthesis of N-phenylmaleimide</td>
<td>Lab: Diels Alder</td>
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<tr>
<th>Week 2</th>
<th>Monday</th>
<th>Wednesday</th>
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<tbody>
<tr>
<td>Lecture:</td>
<td>13C NMR</td>
<td>Lecture: Mass Spectrometry</td>
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<tr>
<td>Lab:</td>
<td>Nitration of Acetanilide</td>
<td>Laboratory: Sep Nitration of Methyl Benzoate</td>
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<tr>
<th>Week 3</th>
<th>Monday</th>
<th>Wednesday</th>
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<tbody>
<tr>
<td>Lecture:</td>
<td>Review</td>
<td>Lecture: Brief Quiz</td>
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<tr>
<td>Laboratory:</td>
<td>Synthesis of Polyesters and Nylon 6,6</td>
<td>Laboratory: Microsome lab</td>
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Assignments  
There will be problems associated with each of the laboratory experiments, as well as, notebook pages due every Monday during the 1L/2L sequence. The notebook pages will require the following sections:

1.] Objective Statement and a Chemical Equation

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\[
\text{PhI(OAc)}_2 \text{H}_2 \text{NSO}_3 \text{CH}_2 \text{CCl}_3 \text{NH}_3 \text{SO}_2 \text{O} = \text{H, -OCH}_3, \text{-CH}_3, \text{-CN, -NO}_2
\]
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2.] Procedural Sketch (this should be written in your own words using bullet points)

1.) To a vial containing a stir bar add 100mg 2,2,2-trichloroethoxysulfonamide (0.4376mmol, 1eq), 6.6mg Rh\text{esp}_2 (0.0088mmol, 0.02eq), 88mg magnesium oxide (2.188mmol, 5eq), and finally 93mg ethylbenzene (107µL, 0.8572mmol, 2eq).
2.) Use a micropipette to measure the ethyl benzene.
3.) Be sure to cap the vial immediately after addition of ethylbenzene as it is fairly volatile.
4.) To the above mixture should then be added 438µL of isopropyl acetate. Swirl the vial a few times and then add 282mg of diacetoxyiodobenzene (0.875mmol, 2eq).

5.) Recap and label.

3.] Observations and Data
   Examples given include:
   (a.) Color and State Changes
      - Upon addition of the isocyaniode, yellow precipitate was noted.
      - White crystals of aspirin were observed at 1 hour.
      - The reaction mixture changed from green to red after 30 minutes.
   (b.) Masses (this is important for percent yield calculations)
      To a vial containing a stir bar, 104 mg 2,2,2-trichloroethoxysulfonylamide, 6.9 mg Rh2esp2, 93 mg magnesium oxide, and finally 107µL ethylbenzene was added.
   (c.) Yield
   (d.) Melting Point Range

4.] Conclusions – Write a brief one paragraph summary containing the results of your experiment and the conclusions that can be drawn from your results.
   - Did the reaction work?
   - Were byproducts formed? If so, what were they?
   - Was the product pure?
   - What could be done to improve the reaction?

5.] Spectra and Chromatograms
   All spectra and chromatograms should be completely labeled and submitted with the notebook pages.

Grading Rubric for Notebooks:

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<tr>
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<th>Below Average</th>
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<th>Above Average</th>
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<tbody>
<tr>
<td>Objective Statement</td>
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<tr>
<td>Procedural Sketch</td>
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<tr>
<td>Observations</td>
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<tr>
<td>Conclusion</td>
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<td>Spectra and/or Chromatograms</td>
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<td>Overall Quality</td>
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Grades (out of 100 points): The notebook pages and problem sets will sum to 25 points each (three per course due on Monday at 1 pm), the final quiz will be worth 20 points, and participation and laboratory technique will account for the remaining 5 points. The technique and participation score will come from TA observation based upon arriving prepared and working with others in laboratory.
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<tr>
<th>Grade</th>
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<tbody>
<tr>
<td>A+</td>
<td>97 – 100</td>
<td>B+</td>
<td>87 – 89</td>
<td>C+</td>
<td>77 – 79</td>
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<tr>
<td>A</td>
<td>93 – 96</td>
<td>B</td>
<td>83 – 86</td>
<td>C</td>
<td>73 – 76</td>
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<tr>
<td>A-</td>
<td>90 – 92</td>
<td>B-</td>
<td>80 – 82</td>
<td>C-</td>
<td>70 – 72</td>
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**Safety Policies:**
(1.) You must complete the online safety-training course by the start of the second week of the course in which you are enrolled. The online safety training is explained in detail in a separate handout posted to coursework.
(2.) You must always wear appropriate PPE at all times during the laboratory. Appropriate PPE includes goggles, lab coat, closed toed shoes, and gloves as necessary.
(3.) If you are more than 15 minutes late to lab and miss the safety overview, you will receive no credit for that experiment and will forfeit 50% of your grade on the notebook pages and problem set (in other words, the highest score you can earn is a 12.5 out of 25 points).
(4.) Always follow the guidelines outlined in the protocol and by the teaching assistant. If you have concerns or questions, please ask.

**Policies on Assignments:**
(1.) You are welcome to work together in lab and discuss data; however, the answers to the problem sets and the summary should be written in your own words and reflect your understanding of the content. Summaries or problem sets that are identical represent a violation of the academic honor code and are subject to academic review.
(2.) Late assignments are subject to a 10% penalty per day late. Because graded work is returned in lecture on Wednesday (two days after submission), assignments submitted after Wednesday cannot be accepted.