

10. Course Outline

Organic Chemistry I Lab (CHEM 210L)

Week	Topic(s) (see lab techniques by week on drlchem.com)
1	Read chapters 1 & 2. See www.drlchem.com/chem210L to review lab notebook requirements and safety study guide. Set up notebook for week 2.
2	Read chapter 3. Take safety exam; grade ≥ 80 needed by week 3. Use the standard to calibrate the thermometer, then do "Melting Points of Pure Urea and Cinnamic Acid" (p54) using a Mel-Temp apparatus. Submit lab notebook.
3	Review chapter 3. Melt urea (or cinnamic acid) and an unknown (p54) using a Mel-Temp apparatus. Unknown may be from Table 3.1 or 3.2. Submit lab on paper.
4	Review chapter 3. Do microscale boiling points for a known and an unknown (one of acetone, methanol, ethanol, 1-propanol, 2-propanol, 3-methyl-1-butanol, cyclohexanone, or cyclohexane) using a digital thermometer, reaction tube, and sand bath (p57). Submit notebook.
5	Read chapter 4. Do experiment 1, "Solubility Tests," microscale for anthracene, naphthalene, and phthalic acid in methanol, ethanol and water solvents (p78). See week 6 for recrystallization procedures. Submit lab on paper.
6	Review chapter 4. Do experiment 2, "Recrystallization of Pure Phthalic Acid, Naphthalene, and Anthracene" microscale (p78-80). Submit notebook.
7	Review chapter 4. Do experiment 7, "Purification of an Unknown," microscale (p83). Unknown will be one of the three test compounds from weeks 5 and 6. Submit lab on paper.
8	Read chapter 5. Do 1 "(B) Simple Distillation of Ethanol-Water Mixture" macroscale (p97). Submit lab notebook.
9	Review chapter 5. Do 2 "(B) Fractional Distillation of Ethanol-Water Mixture" macroscale (p98). Submit lab on paper.
10	Read chapter 6. Do part 1, experiment 3, "Isolation of Citral" (p108). Setup is similar to alternative setup on p109, except add water through a Claisen adapter, use magnetic stirring. Distill 3mL lemongrass oil and 75mL water per student. Submit notebook.
11	Read chapter 7 p131-137, top 140. Review chapter 6 and do part 1, experiment 3, "Extraction of Citral" (p110). Do individual extractions with 5mL t-butyl methyl ether per 1mL distillate. Drying steps for microscale are on p107, but do macroscale as described in chapter 7. Isolate and submit a sample of pure citral. Submit lab on paper.
12	CH7-exp 3. Review chapter 6. Do part 3, "Sublimation of an Unknown Substance" (p127) macroscale. Use a culture dish with 0.7g of unknown to sublime. After the sublimation, record the melting point of your purified compound. Submit notebook.
13	Read chapter 7. Do experiment 1 (separation of carboxylic acid, phenol and a neutral substance) microscale on p145. Do % recoveries and melting points. Submit lab on paper.
14	Read chapter 10. Plan and run a separation by GC.
15	Read chapter 10. Complete separation by GC. Submit lab on paper.

* Dates and topics are subject to change at the discretion of the faculty