

# Online Videos of Techniques

Chemistry 2312  
Honors Organic Chemistry Laboratory

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T. R. Hoye

Many of the video resources **highlighted** will augment the techniques you have seen in tutorials and/or are now beginning to use in your experiments. I recommend you view them as you get the chance. Many are ~10 min long.

The **grayed** videos are less directly relevant, but feel free to have a look if you like.

**IR Spectroscopy Tutorial (OMNIC Software)**

[IR spectroscopy tutorial, NaCl salt plate - YouTube](#)

cf. **Tutorial #2:**

**ACS Safety Video**

[Safety Video by American Chemical Society \(1991\) - YouTube](#)

cf. **Tutorial #2:**

Chemical Handling 1:20 - 15:08

Safety Equipment 29:13 - END

**How to use a Rotary Evaporator** (note: we use a water aspirator rather than a vacuum pump as our vacuum source in Chem 2312H)

[How to use a rotovap \(rotary evaporator\) - YouTube](#)

cf. **Tutorial #1:**

The following list is of videos prepared by Professor Jane Wissinger of our Department. She has kindly shared these resources with us (ignore the dates).

## Correlation Guide for Jane Wissinger's Organic Chemistry Videos and *Laboratory Techniques in Organic Chemistry, 4e*

**Washing Glassware:**

<https://www.youtube.com/watch?v=gwkyfiPQShw&feature=youtu.be> - Jan. 15

**Chapter 1 Videos: Introduction to the Organic Laboratory**

cf. **Tutorial #5**

<b>Title:</b>	<b>Handling of Waste</b> - Jan. 15
<b>URL:</b>	<a href="http://youtu.be/-UXFY5iNME">http://youtu.be/-UXFY5iNME</a>
<b>Section in Book:</b>	1.8 Handling Laboratory Waste
<b>Description:</b>	This video features information about handling waste, including practices that are somewhat specific to the University of Minnesota.

**Chapter 4 Videos: Laboratory Glassware**

<b>Title:</b>	Greasing Ground Glass Joints - Feb. 5
<b>URL:</b>	<a href="http://youtu.be/Eau5LvPwJSY">http://youtu.be/Eau5LvPwJSY</a>
<b>Section in Book:</b>	4.2 Miniscale Standard Taper Glassware
<b>Description:</b>	This video demonstrates light greasing of joints as discussed in

### Chapter 7 Videos: Setting up Organic Reactions

<b>Title:</b>	Refluxing the Reaction - Jan. 29
<b>URL:</b>	<a href="http://youtu.be/YWISE-8T2BI">http://youtu.be/YWISE-8T2BI</a>
<b>Section in Book:</b>	7.1 Refluxing a Reaction Mixture
<b>Description:</b>	This video shows miniscale apparatus and covers theory of reflux with tips.

<b>Title:</b>	Flame Drying the Grignard Apparatus - Last Priority
<b>URL:</b>	<a href="http://youtu.be/9G7-Rc4lBcs">http://youtu.be/9G7-Rc4lBcs</a>
<b>Section in Book:</b>	7.3 Anhydrous Reaction Conditions
<b>Description:</b>	This video illustrates flame drying of an apparatus and the use of drying tubes.

### Chapter 9 Videos: Filtration

<b>Title:</b>	Gravity Filtration - Feb. 5
<b>URL:</b>	<a href="http://youtu.be/SxmmxXTTnWA">http://youtu.be/SxmmxXTTnWA</a>
<b>Section in Book:</b>	9.1 Filtering Media 9.2 Gravity Filtration
<b>Description:</b>	This video covers gravity filtration applied to removing a drying agent from an organic liquid on a miniscale. Folding of a fluted filter paper and use is illustrated.

<b>Title:</b>	Vacuum Filtration - Feb. 12
<b>URL:</b>	<a href="http://youtu.be/fz8KlrZT6uc">http://youtu.be/fz8KlrZT6uc</a>
<b>Section in Book:</b>	9.4 Vacuum Filtration
<b>Description:</b>	This video shows apparatus and the procedure for vacuum filtration on a miniscale. Vacuum filtration of a recrystallized solid is illustrated.

### Chapter 10 Videos: Extraction

cf. **Tutorial #1**

<b>Title:</b>	Liquid/Liquid Extraction - Jan. 15
<b>URL:</b>	<a href="http://youtu.be/8bZl7mcGOEw">http://youtu.be/8bZl7mcGOEw</a>
<b>Section in Book:</b>	10.1 Understanding How Extraction Works 10.2 Changing Solubility with Acid-Base Chemistry 10.3 Doing Extractions 10.4 Miniscale Extractions 10.5 Summary of the Miniscale Extraction Procedure
<b>Description:</b>	This video covers miniscale extraction theory and practice. It also shows the extraction of iodine from a water phase to an organic phase (cyclohexane).

<b>Title:</b>	Acid/Base Extraction Technique – Jan. 29
<b>URL:</b>	<a href="https://youtu.be/2GuDxHAAuaw">https://youtu.be/2GuDxHAAuaw</a>
<b>Section in Book:</b>	10.2 Changing Solubility with Acid-Base Chemistry
<b>Description:</b>	This video demonstrates washing an aqueous acid from an organic phase and also testing for neutralization.

## Chapter 11 Videos: Drying Organic Liquids and Recovering Reaction Products

cf. Tutorial #1

<b>Title:</b>	Drying of Organic Liquids – Jan. 15
<b>URL:</b>	<a href="http://youtu.be/66QmPP0vluK">http://youtu.be/66QmPP0vluK</a>
<b>Section in Book:</b>	11.1 Drying Agents 11.3 Sources of Confusion and Common Pitfalls
<b>Description:</b>	This video shows how to add drying agent to an organic liquid, how to decide how much to use, and methods of determining when the liquid is dry.

<b>Title:</b>	Tips for Separatory Funnel Handling – Jan. 15
<b>URL:</b>	<a href="http://youtu.be/Odc1IqiX62k">http://youtu.be/Odc1IqiX62k</a>
<b>Section in Book:</b>	11.3 Sources of Confusion and Common Pitfalls
<b>Description:</b>	This is a short clip to help students avoid some common mistakes when handling a separatory funnel in lab.

<b>Title:</b>	Tips for Neutralizing Extraction Phases – Jan. 15
<b>URL:</b>	<a href="http://youtu.be/Uy0mZ1jrRbQ">http://youtu.be/Uy0mZ1jrRbQ</a>
<b>Section in Book:</b>	11.3 Sources of Confusion and Common Pitfalls
<b>Description:</b>	This is a short clip on checking the pH of washes during extraction.

## Chapter 12 Videos: Boiling Points and Distillation

<b>Title:</b>	Simple Distillation Pt #1 – Building the Apparatus – Jan. 22
<b>URL:</b>	<a href="http://youtu.be/n1pvnWgO34A">http://youtu.be/n1pvnWgO34A</a>
<b>Section in Book:</b>	12.3a Miniscale Distillation
<b>Description:</b>	This video shows the selection of the proper size of glassware and assembly of apparatus for miniscale distillation, including thermometer position, use of Keck clamps, and hose attachment.

<b>Title:</b>	Simple Distillation Pt #2 – Preparing for Distillation – Jan. 22
<b>URL:</b>	<a href="http://youtu.be/Hhlem2N43S0">http://youtu.be/Hhlem2N43S0</a>
<b>Section in Book:</b>	6.1 Preventing Bumping of Liquids 6.2 Conventional Heating Devices 12.3a Miniscale Distillation

<b>Description:</b>	This video covers adding the liquid to distill, boiling stones, and positioning of the heat source.
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<b>Title:</b>	Simple Distillation Pt #3 – Performing the Distillation – Jan. 22
<b>URL:</b>	<a href="http://youtu.be/QA7nA09lVOw">http://youtu.be/QA7nA09lVOw</a>
<b>Section in Book:</b>	12.3a Miniscale Distillation
<b>Description:</b>	This video shows how to carry out the distillation, record the boiling point, and when to stop the distillation.

<b>Title:</b>	Steam Distillation – Feb. 19
<b>URL:</b>	<a href="https://www.youtube.com/watch?v=9G7-Rc4lBcs&amp;feature=youtu.be">https://www.youtube.com/watch?v=9G7-Rc4lBcs&amp;feature=youtu.be</a>
<b>Section in Book:</b>	12.6 Steam Distillation
<b>Description:</b>	This video covers apparatus and theory of steam distillation.

<b>Title:</b>	Fractional Distillation – Jan. 29
<b>URL:</b>	<a href="http://youtu.be/ceaOFiB1DMI">http://youtu.be/ceaOFiB1DMI</a>
<b>Section in Book:</b>	12.4 Fractional Distillation
<b>Description:</b>	This video covers building the apparatus, discussion of theoretical plates, and how to perform the distillation.

### Chapter 14 Videos: Melting Points and Melting Ranges

<b>Title:</b>	How to pack a melting point tube – Feb. 12
<b>URL:</b>	<a href="http://youtu.be/zzsQkVYRq_g">http://youtu.be/zzsQkVYRq_g</a>
<b>Section in Book:</b>	14.3 Determining Melting Ranges
<b>Description:</b>	This video shows how to fill a capillary tube and seal it when analyzing compounds that sublime.

### Chapter 15 Videos: Recrystallization

<b>Title:</b>	Recrystallization – Feb. 12
<b>URL:</b>	<a href="http://youtu.be/0CoDEBTcXbk">http://youtu.be/0CoDEBTcXbk</a>
<b>Section in Book:</b>	15.1 Introduction to Recrystallization 15.2 Summary of the Recrystallization Process 15.3 Carrying Out Successful Recrystallizations 15.4 How to Select a Recrystallization Solvent 15.5 Miniscale Procedure for Recrystallizing a Solid
<b>Description:</b>	This video demonstrates the steps of recrystallization, using a solvent-pair mixture..

### Chapter 18 Videos: Thin-Layer Chromatography

cf. **Tutorial #6**

<b>Title:</b>	Thin Layer Chromatography – Jan. 29
<b>URL:</b>	<a href="http://youtu.be/b005W_Io34Y">http://youtu.be/b005W_Io34Y</a>
<b>Section in Book:</b>	18.1 Plates for Thin-Layer Chromatography

	18.2 Sample Application 18.3 Development of a TLC Plate 18.4 Visualization Techniques 18.5 Analysis of a Thin-Layer Chromatogram 18.6 Summary of TLC Procedure
<b>Description:</b>	This video shows how to prepare a TLC chamber, spot a plate, run a TLC, and visualize using UV lamp and iodine chamber.

<b>Title:</b>	Tips for Pulling Capillaries – Jan. 29
<b>URL:</b>	<a href="http://youtu.be/Osp8DpPp3is">http://youtu.be/Osp8DpPp3is</a>
<b>Section in Book:</b>	18.2 Sample Application
<b>Description:</b>	This video covers pulling TLC capillaries.

### Chapter 19 Videos: Liquid Chromatography

cf. **Tutorial #6**

<b>Title:</b>	Chromatography Column – Packing the Column – Feb. 5
<b>URL:</b>	<a href="http://youtu.be/D16sVkn3_xM">http://youtu.be/D16sVkn3_xM</a>
<b>Section in Book:</b>	19.1 Adsorbents 19.2 Elution Solvents 19.3 Determining the Column Size 19.4 Flash Chromatography
<b>Description:</b>	This video shows slurry packing of a column chromatography column.

<b>Title:</b>	How to Load a Sample onto a Column – Feb. 5
<b>URL:</b>	<a href="http://youtu.be/LV0kvLPp1gA">http://youtu.be/LV0kvLPp1gA</a>
<b>Section in Book:</b>	19.4 Flash Chromatography
<b>Description:</b>	This video covers application of a sample to a column chromatography column.

### Chapter 20 Videos: Gas Chromatography

cf. **Tutorial #4**

<b>Title:</b>	Gas Chromatography Basics – Feb. 12
<b>URL:</b>	<a href="http://youtu.be/ZpPzImDSfqc">http://youtu.be/ZpPzImDSfqc</a>
<b>Section in Book:</b>	20.1 Instrumentation for GC 20.2 Types of Columns and Liquid Stationary Phases 20.5 GC Operating Procedures
<b>Description:</b>	This video covers parts and theory of the instrument as well as injection of a sample.

### Chapter 21 Videos: Infrared Spectroscopy

cf. **Tutorial #2**

<b>Title:</b>	How to Prepare an IR sample – Jan. 22
<b>URL:</b>	<a href="http://youtu.be/UqrF5Yu2Xko">http://youtu.be/UqrF5Yu2Xko</a>
<b>Section in Book:</b>	21.5 Sample Preparation for Transmission IR Spectra
<b>Description:</b>	This video shows sample preparation for liquid thin film and solid cast film IR on salt plates.

Chapter 22 Videos: Nuclear Magnetic Resonance Spectroscopy    cf. **Tutorial #3**

<b>Title:</b>	How to Prepare an NMR sample - Jan. 29
<b>URL:</b>	<a href="http://youtu.be/khylGw5yPx8">http://youtu.be/khylGw5yPx8</a>
<b>Section in Book:</b>	22.2 Preparing Samples for NMR Analysis 22.3 Summary of Steps for Preparing an NMR Sample
<b>Description:</b>	This video shows the preparation of both a liquid and solid NMR sample.