

THE DIGITAL LAB TECHNIQUES MANUAL

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- 1. Volumetric Techniques:** Don't let inaccuracy hold you back in lab! This video introduces the proper methods for measuring precise volumes of liquid using pipets, burets, volumetric flasks, and syringes.
- 2. Titration:** Learn how to master the art of titration in this video—with a detailed demonstration of an acid/base titration using phenolphthalein.
- 3. TLC-The Basics:** Thin-layer chromatography is the most commonly used analytical technique in many research labs. This video walks you through every step, from setting up a developing chamber to calculating R_f values.
- 4. TLC-Advanced:** Discover a few of the more complicated skills related to thin-layer chromatography—cutting glass TLC plates, flame-pulling spotters, and using TLC stains to visualize spots.
- 5. Reaction Work-Up I: Extracting, Washing & Drying:** It ain't over 'til it's over. Learn how to “work up” your reaction using a separatory funnel to perform a liquid-liquid extraction. This is one purification technique you don't want to miss!
- 6. Reaction Work-Up II: Using the Rotavap:** The rotary evaporator is your friend in the lab. This video will ensure that you build a safe and productive relationship.
- 7. Filtration:** The easiest way to separate a liquid from a solid? Filtration! Learn how to effectively carry out gravity and vacuum filtrations in this video.
- 8. Sublimation:** From solid to gas, and then straight back to solid. This purification technique is both beautiful and useful. Find out why by watching the atmospheric pressure sublimation of ferrocene in this video.
- 9. Recrystallization:** Recrystallization takes patience, but it's worth it! This video walks you through the procedure, from solubility tests to cold filtration, with information on one-solvent and two-solvent recrystallizations.
- 10. Column Chromatography:** It takes considerable practice to master the art of “running a column”. This video will get you started, with tips on picking appropriate conditions, packing and running a column, monitoring separation, and even making a micro-column from a pipet.