The best advise for recording lab experiments (lab notebooks) and archiving data (NMR, GC, HPLC, optical rotations) is to take the time to do a GOOD (NEAT) job in a timely fashion. For each experiment you should take 5-10 min to plan the experiment and 10-15 min to record results AS SOON AS AVAILABLE.

Lab Notebook (Remember to leave room for indexing)

PLANNING
• Date and write in ink
• Equation at the top of the page—provide the structure of products following reaction completion [include no reaction, decomposition, unidentified product(s)]
• Literature references
• Tabulate MW, density, amount, mmol, equivalent and SOURCE of starting materials (prepared substrates—notebook cross reference, e.g. GS-III-147A). Also solvent (quantity)—if distilled prior to use make note.

EXECUTION AND OBSERVATION
• PLANNING & EXECUTION—Write-up—similar to typical JOC experimental. Particularly note reaction TIME, when reagents are added and rates, e.g. a solution of 10.0 g of X in 100 mL of Et₂O was added dropwise over 30 min.
• ANALYSIS—For each reaction xerox or draw TLC—indicate reaction time—THREE LINES—starting material (sm), co-mixture (C) and reaction (R). Note developing solvent, UV or non-UV and staining system (PMA, Anis, KMnO₄ etc). GC, HPLC & NMR—on the chromatogram give reaction, time, conditions (column temperature, solvent system, pump rate etc)—Either staple to the page or place in binder—IN THE LATTER CASE YOU MUST INDICATE IN THE NOTEBOOK A GC(HPLC) TRACE NUMBER AND LOCATION.
• Physical observations, color, endothermic, exothermic, precipitate etc.
• Work-up—quenching, extraction procedure (3xXX mL), brine, drying method (MgSO₄, K₂CO₃, etc).
• Isolation method—eluant system, if distilled temp (press)—note literature values when known.
• Yield-weight, mmol & % yield—give structure(s) & reference numbers for each product.

CHARACTERIZATION—Indicate reference numbers in the lab notebook for each NMR and IR Spectrum.
• Physical appearance, colorless oil, white solid, colorless foam.
• Melting point
• Elemental analysis
• HRMS or LRMS
• IR spectrum
• 1H and 13 C NMR
• ON EACH PIECE OF DATA GIVE COMPOUND REF NUMBER AND STRUCTURE OR REACTION EQUATION.