TENTATIVE LABORATORY SCHEDULE
General Chemistry 110, Lycoming College, Fall 2011

Date	**Experiment (points)**	**Prelab lecture / Lab Quiz, What's Due**
Aug. 30 Sept. 1	Orientation, Check in, Sig Figs lecture, Brief Expt. on Scientific Method	Significant Figures lecture Lab Deposit, have safety glasses, get key
Sept. 6, 8	The Measurement of Mass and Volume: **Density** of Liquids and Solids (40 pts)	 *Leave lab*: Density data sheets
Sept. 13, 15	The **Separation** of a Mixture (40 pts)	*Start of lab*: Density lab report *Leave lab*: Separation data sheets
Sept. 20, 22	Separation, Purification, & Identification of a Chemical Mixture (Four Week Expt) Week 1: **Distillation** and Measurement of the Boiling Point (BP) of the Solvent	*Leave lab*: Distillation data sheets
Sept. 27, 29	Week 2: Freezing Point (**FP**), **Density**, and Infrared (**IR**) Spectrum of the Solvent (40 pts)(one report for weeks 1 and 2)	*Start of lab:* Separation lab report *Leave lab*: FP, Density & IR data sheets
Oct. 4, 6	Week 3: Recrystallization of the Solute	*Start of lab:* Solvent Identity report (1, 2) *Leave lab:* Recrystallization data sheets
Oct. 11, 13	Week 4: Melting Point (**MP**), Gas Chromatography (**GC**), Mass (**MS**) and **IR** Spectroscopy of the Solute (40 pts) (one report for weeks 3 and 4)	*Leave lab*: MP GC MS IR data sheets
Oct. 18, 20	**Percent Water** in a Hydrate (40 pts)	*Start of lab*: Solute Identity lab report (3, 4) *Leave lab*: Percent Water data sheets
Oct. 25, 27	Synthesis of **Alum** (Potassium Aluminum Sulfate) from Aluminum Scrap (40 pts)	*Start of lab*: Percent Water lab report *Leave lab*: Alum data sheets
Nov. 1, 3	Growing **Alum Crystals**, **Penny** Lab: Copper to "Silver" to "Gold" (20 pts total)	 *Leave lab*: Alum Crystal, Penny data sheets
Nov. 8, 10	**Atomic Weight** of a Metal (40 pts)	*Start of lab*: Alum and Penny lab reports *Leave lab*: Atomic Weight data sheets
Nov. 15, 17	**Calorimetry**, ΔH, and Hess' Law (40 pts)	*Start of lab*: Atomic Weight lab report *Leave lab*: Calorimetry data sheets
Nov. 22, 24	THANKSGIVING – NO LAB	
Nov. 29 Dec. 1	The **Nine Bottle** Problem (40 pts)	*Start of lab*: Calorimetry lab report *Leave lab*: Nine Bottle lab conclusions
Dec. 6, 8	Checkout	*Start of lab*: Nine Bottle lab questions *Leave lab*: Turn in key, get deposit back

Pre-lab lectures will be held in Heim G41 for the following topics and weeks: Significant figures and Introduction to Lab (Aug. 30, Sept 1); Organic molecular structure and functional groups, and Infrared (IR) spectroscopy (Sept. 27 and 29); Gas Chromatography (GC) and Mass Spectroscopy (MS) (Oct. 11 and 13).

Lab Quizzes will be held in Heim 220 on the following dates: September 20 and 22; October 18 and 20; December 6 and 8. Three lab quizzes are worth 20 points each, for a total of 60 points.

Lab performance is worth 20 points, and will be evaluated according to the following matrix:

Lab Performance Matrix

	1 (poor)	2 (fair)	3 (good)	4 (outstanding)
Safety – Personal Attire	Must be frequently reminded to wear safety glasses, appropriate clothing or footwear. Brings food, drink, cell phone or other electronic device into lab.	Need occasional reminding about safety glasses or clothing/footwear. Does not bring food, drink or personal electronic devices into lab.	**Consistently wears safety glasses. Wears appropriate clothing and footwear. Does not bring food, drink, or personal electronic devices into lab.**	Consistently wears safety glasses and appropriate attire. Does not bring food, drink or personal electronic devices into lab. Never needs to be reminded of policy. Helps others follow safety rules.
Safety – Work Area and Hygiene	Spills are not cleaned-up right away. Bench or hood is left in poor condition on multiple occasions.	Bench and fume hood are not always left in good condition.	**Keeps a clean, uncluttered work area. Bench and fume hood are cleaned at end of lab. Shared space (ie. reagent hood) is clean.**	During lab, work area is clean, organized, and without clutter. Bench and fume hood are thoroughly cleaned and organized at end of lab. Checks shared space to ensure it is clean.
Lab Equipment and Chemicals	Improper disposal of chemicals on multiple occasions. Frequently fails to store equipment properly at end of lab. Leaves lids off reagents bottles.	Improper disposal of chemicals. May occasionally fail to store equipment properly at end of lab. Lids occasionally left off reagent bottles.	**Personal and shared equipment stored properly at end of lab. Lids kept on reagent bottles. Chemicals are disposed of properly.**	Personal and shared equipment stored properly. Lids kept on reagent bottles. Chemicals are disposed of properly. Helps to ensure that others are handling chemicals, equipment and waste properly.
Preparation and Efficiency	Misses prelab or is significantly late on multiple occasions. Or, uses lab time poorly.	Is late to prelab on more than one occasion or does not work efficiently in lab.	**Arrives on time or has been slightly late on one occasion. Works efficiently in lab.**	Arrives on time. Works efficiently in lab. Uses "downtime" effectively (such as to prepare for later parts of the experiment).
Laboratory Technique	Completes experiments with little attention to technique. Careless or abusive with instruments/ equipment.	Basic proficiency at lab techniques. Or, not careful with equipment and/or instruments.	**Careful execution of lab techniques. Handles equipment, instruments and chemicals with care.**	Careful and skilled execution of lab techniques. Handles equipment, instruments and chemicals with care.

The **overall lab grade** is calculated based on a total of 420 points possible (eight labs at 40 points each for a total of 320 points, one lab grade of 20 points, three lab quizzes for a total of 60 points, and lab performance for 20 points). This is then converted into a percentage and that percentage is used to find the number of points from lab in the overall Chemistry 110 grade.

Example: A student earned 357 lab points out of 420 possible lab points, or 85.0%. In Chemistry 110, the lab is worth 150 course points out of a possible 700, so 85.0% of 150 is 127.5 course points (out of a possible 150). Please be aware that a point in lab is NOT the same as a point in the course.