

1210 WEEKLY LAB NOTES

These notes will help you to satisfactorily complete the Chemistry 1210 laboratory component.

DO NOT LOSE THESE PAGES. READ THE APPROPRIATE PAGES IN THE WEEK BEFORE THE SCHEDULED EXPERIMENT.

STUDENTS MAY WORK TOGETHER ON LAB REPORTS, BUT ALL SUBMITTED WORK MUST BE ONE'S OWN INDIVIDUAL WORK. ANY OBVIOUSLY COPIED OR PARAPHRASED WORK WILL BE GIVEN A MARK OF ZERO.

WEEK 1— Check in. Use of Linear Regression Program. Use of the Spectronic 20.

Students working in pairs will (1) Determine the wavelength of maximum absorbance for a coloured aqueous species. (2) Prepare the Amminenickel Chloride compound for analysis in week two. Each student will produce a Beer's Law plot with data given by lab instructor.

WEEK 2- Analysis of Nickelammine complex.

PRELAB QUIZ

Partner experiment, one report EACH student.

WEEK 3- Spectral Analysis of Fe^{2+} using 1,10-phenanthroline

POST LAB QUIZ Nickelammine

PRELAB QUIZ

WEEK 4- Two Component System

POST LAB QUIZ Iron Analysis

PRE LAB QUIZ

WEEK 5- Oxidation Reduction Analysis

POST LAB QUIZ Two Component System

PRE LAB QUIZ

Use of the Excel based spreadsheet, available on the Kwantlen chemistry web site is MANDATORY. A printed copy MUST accompany the lab report.

WEEK 6- Electrochemistry

PRELAB DATA FOR KINETICS

POST LAB QUIZ Oxidation Reduction

PRE LAB Page 49 lab manual. To be handed in to course instructor two days before lab.

Partner experiment, report is due at end of lab period. One report per pair is optional.

WEEK 7- Chemical Kinetics: Hydrolysis of Ethyl Lactate

POST LAB QUIZ Electrochemistry

PRELAB DATA TO BE PROVIDED BY LAB INSTRUCTOR , due two days before lab.

Use of the Excel based spreadsheet, available on the Kwantlen chemistry web site is MANDATORY. A printed copy must accompany the lab report.

WEEK 7- Chemical Kinetics: Hydrolysis of 2-chloro-2-methylpropane

POST LAB QUIZ Electrochemistry

PRELAB page 62 1210 lab manual due two days before lab

WEEK 8- PH and Indicators: Titration curves

PRELAB Due two days before lab

a) Look up the following indicators in the CRC Handbook of Chemistry and Physics and list them in order of decreasing acid strength (increasing pK_a).

bromocresol green	methyl orange
bromothymol blue	phenolphthalein
cresol red	thymol blue

b) Calculate the expected pH of the three acid solutions used in part *II*. These values are also required for the lab report.

WEEK 9- Equilibrium and Solubility Product

POST LAB QUIZ Titration Curves

PRELAB Due two days before lab

Calculate (a) the expected pH of a saturated solution of magnesium hydroxide at 25°C, and (b) the expected voltage of the concentration cell at 25°C (refer to lab manual pages 82-83).

WEEK 10- Solution Calorimetry

POST LAB QUIZ Equilibrium

PRELAB Due two days before lab

Calculate (show all work) and tabulate the ΔH literature values for all the reactions to be studied in this experiment (see pages 93-94 for relevant information). Calculate the literature values of ΔH° for the three dissociation reactions of phosphoric acid (page 94). ALL THESE VALUES ARE ALSO REQUIRED FOR THE LAB REPORT.

WEEK 11- Freezing Point Depression

POST LAB QUIZ Solution Calorimetry

PRELAB QUIZ

Partner experiment. Lab report due at end of lab period. Each pair of students will hand in one report.