

Che-255 Biochemistry with Lab
Gustavus Adolphus College
Fall 2010 and Spring 2011

Experiment 1 (1 week) : Introduction to measuring, dilutions, and UV/Vis spectroscopy

- Cary-50 Spectrophotometer

Experiment 2 (1 week) : Determination of the pH dependence of porcine fumarase

- Cary-50 Spectrophotometer
- pH meter

Experiment 3 (3 weeks) : Purification of fumarase from a culture of *Saccharomyces cerevisiae*

- Cary-50 Spectrophotometer
- Pharmacia P-1 peristaltic pump
- RediFrac fraction collector
- BioRad mini protein gel electrophoresis apparatus

Experiment 4 (1 week) : Kinetic analysis of porcine fumarase

- Cary-50 Spectrophotometer

Experiment 5 (5 weeks) : Independent research and presentation on some aspect of fumarase (temperature dependence, enzyme stability, inhibition are common themes of the student-driven experimental design and execution)

- Similar instrumentation as used above
- Some groups may utilize a thermocycler, nanodrop, and other instruments located in the chemistry and biology departments depending upon the nature of their experiments.

Discussion (1 week): Reading and critiquing the scientific literature and practice calculations with pH and pKa