

Chemistry 336: Classical Physical Chemistry

Instructor: Sarah Petty
Email: spetty@holycross.edu
Office: 114 Haberlin
Phone #: 3428
Office Hours: Tuesdays 1 – 3pm; Wednesdays 2 – 4 pm; Thursdays 6 – 7pm.
If you have conflicts with these hours, appointments can be scheduled by email.

Classes: Mondays, Wednesdays and Fridays: 10:00 am.
Haberlin 19.
To avoid disruptions, please arrive on time and remain in class for the duration. Everyone will be required to actively participate in class, by asking and answering questions; to maximize the benefits of class discussion you should have read through your notes from the previous lecture and any relevant material in the text book, prior to coming to class.

Reading: The following text is required for this course:
Engel, T and Reid, P. *Thermodynamics, statistical thermodynamics and kinetics*; Benjamin Cummings. (ISBN: 0-8053-3844-6)

Problem sets: You will be given 7 problem sets over the course of the semester which will be handed out in class and posted on Blackboard. The due date will be shown on the problem set but will typically be 10 am on the following Friday. Late problem sets will not be graded for credit. **No exceptions.**

There will be 35 points available for each problem set. Students routinely scoring less than 20 – 25 on problem sets should schedule time with me to discuss their progress (outside office hours if necessary).

While you are encouraged to work together to solve the problems, the final work you turn in must be your own.

In addition, some problems designed to hone your math skills will be available on Blackboard. These will be marked (to allow you to check your progress, not for credit) if you turn them in by Sept 29th. Although these are **optional**, I encourage you to get as much practice as possible with the questions. Your text book also contains a lot of useful problems you can work through.

Tests: Three in-class tests will be scheduled over the course of the semester on Sept 29th, Oct 20th and Nov 17th. No notes will be allowed and you must work alone. Equation sheets will be provided.
Tests can only be rescheduled with a Dean's note.

Each test will be marked out of 100 points.

Final Exam: This exam will be cumulative, testing everything we have covered in the semester. It will be held on December 14th at 8:30 am and will last for 3 hours. No notes will be allowed and you must work alone. Equation sheets will be provided.

Grading: The total number of points available for the semester is 710. The break-down is as follows:

Problem sets (6 to count from 7): 210 pts.

Tests (3 to count from 3): 300 pts.

Final exam: 200 pts.

Academic Honesty: At all times the work you turn in must be your own. Discussion is encouraged when working through problem sets, but your final answers must be your own. No discussion is permitted during in-class tests or the final exam. Any violations of the college academic honesty policy including, but not limited to, copying problem sets, cheating on exams and plagiarism, will be treated very seriously; punishments will be determined on an individual basis but may involve the individual receiving an F for the course. Any confirmed instances of academic dishonesty will be reported to the Class Dean. You are referred to the course catalogue for further information regarding this important issue.

Course Overview: This course will cover two major physical chemistry topics, equilibrium and kinetics. The first and longer part of the course will focus on equilibrium and toward the end of the semester we will shift our focus to the kinetics of dynamic processes. If time permits, the course will finish with a discussion of statistical mechanics

Topic	Text Book Chapter
Ideal gases	1
Real gases	7
First law of thermodynamics	2
State functions	3
Thermochemistry	4
Second and third law of thermodynamics	5
Gibbs Energy	6
Phase Equilibrium	8
Solutions	9/10
Molecular motion	13/16/17
Chemical Kinetics	18/19
(Statistical Mechanics	15)