

GENERAL CHEMISTRY II: LABORATORY

- Instructor:** Dr. Brian W. Pfennig
Email: bpfennig@ursinus.edu
Office: 303A Pfahler Hall
Phone: 610-409-3000, ext. 2763
- Lab sections:** M T Th F 1:30-4:20 PM Pfahler 209 (pre-lab)
- Office hours:** Informally: I have an open-door policy anytime that I am on campus (most Wednesdays, I will be working from home)
Formally: By appointment or at the times indicated below
Mon. 9:30 AM—11:30 AM
Thurs. my morning is free before 11 AM—email me
Fri. 10:30 AM—12:30 PM
- Description:** Laboratory work related to Chem 206. Experimental work includes unknown identification, qualitative analysis, volumetric and colorimetric analysis, and spreadsheet modeling. *Many of the labs are designed in an effort to reinforce the lecture material; however, students should recognize that the lab and lecture are independent courses and cannot perfectly parallel one another. One semester hour.*
- Textbook:** Required: Chemistry 206 Laboratory Manual, edited by Brian W. Pfennig, 2006 (available for purchase in lab)
- Online presence:** This course is listed on Blackboard. I will post blank report forms on this site and you will also be able to log onto the site to view your grades. Please check this page frequently for announcements and class updates.
- Requirements:**
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| Pre-laboratory assignments or quizzes | 120 pts |
| Report sheets or written laboratory reports | 600 pts |
| Laboratory notebook | 80 pts |
| Final exam (open notebook) | 200 pts |
- Course objectives:** Chemistry is an experimental science and one cannot appreciate its beauty without spending some time in the laboratory. One of the principal aims of the experiments in this manual is to exemplify a few of the topics discussed in the lectures. In the process, you will be introduced to a variety of useful skills. You will learn to use quantitative glassware, electronic balances, computers, and other simple instruments. You will also be trained in proper record

keeping and in the writing of accurate, concise, and informative reports. We hope that, by performing the experiments described in this manual, you will develop confidence and the careful technique needed to obtain reliable scientific results.

Grading:

The following cumulative point totals will ensure the grades indicated below:

965-1000 pts	A+		
925-964 pts	A	895-924 pts	A-
865-894 pts	B+	825-864 pts	B
795-824 pts	B-	765-794 pts	C+
725-764 pts	C	695-724 pts	C-
665-704 pts	D+	625-664 pts	D
595-624 pts	D-	< 595 pts	F

With the exception of addition or transcription errors, all grades are final and are non-negotiable.

Attendance policy: In keeping with a strong liberal arts tradition that encourages active learning and complete participation in the education process, the college expects students to attend class. Specific attendance policies are set by individual instructors and indicated on the course syllabus at the beginning of each term. Warning slips will be issued by instructors for all students failing to meet the stated course attendance policies. Excessive absences by first-year students and students on academic probation will be reported to the Dean's office. *Students may be dropped from a course with a grade of F for failing to meet the stated policy.* The stated policy for this course is that *you must attend every scheduled lab.* Because I am teaching all four lab sections, there is some flexibility for rescheduling a lab within the same week for a *valid and pre-approved* reason. Exceptions to the attendance policy will only be made in rare cases for documented and prolonged illnesses or family emergencies, at the discretion of the instructor. In such instances, it may be expected that you make up the missed work at some later time.

Inclement weather: In the event of inclement weather that might necessitate the cancellation of a class, please check your email and the course Blackboard page. In the event of a cancellation, the class will discuss a suitable time to make up the missed material (probably during check-out week).

Academic integrity: I come from a history of teaching at a college that has a formal and well-established honor code system, in which students take personal responsibility for their conduct. Any academic dishonesty will be treated according to College policy and might well result in

an F for the course. *The most common type of academic dishonesty in the lab would involve plagiarism of all or part of a fellow student's lab results or reporting.* Even if you are working in lab in groups, *you are expected to work independently on the calculations and the preparation of lab reports or report forms.*

Academic disability: Any student who has an academic disability and who requires special accommodations as a result of their disability should contact the appropriate individual in the Dean's Office for documentation *at the start of the semester.* In consultation with the student and the Dean's Office, the instructor will then discuss what constitutes a suitable accommodation that is also fair to the remainder of the students in the course. In all cases, prior notification is essential to make the necessary arrangements. Confidentiality is assured.

Laboratory schedule

(all reports are due one week from the completion of the lab, unless otherwise announced by the instructor):

<u>Week of</u>	<u>Experiment</u>
Jan. 16	Check-in and Orientation
Jan. 23	Expt 1: Identification of an Unknown Solid by Freezing Point Depression
Jan. 30	Expt 2: Solvolysis Kinetics of 2-Chloro-2-Methylpropane
Feb. 6	Expt 3: Synthesis and Percent Cobalt Analysis of a Coordination Complex <i>(*this lab will be long, Thurs. lab will be asked to choose a different day this week, as I will be out of town on Feb. 9)</i>
Feb. 13	Expt 4: Kinetics of Aquation of a Cobalt(III) Coordination Complex
Feb. 20	Expt 5: Measuring the Equilibrium Constant in a Chemical Reaction
Feb. 27	Expt 6: Standardization of a Sodium Hydroxide Solution
Mar. 6	Expt 7: Identification of a Weak Acid by Titration with a Strong Base
Mar. 13	----- SPRING BREAK ! -----
Mar. 20	Expt 8: Using an Excel Spreadsheet to Model Acid-Base Titrations
Mar. 27	Expt 9: Thermodynamics and Equilibrium
Apr. 3	Expt 10: The Ten Bottle Problem: K_{sp} and K_f Equilibria
Apr. 10	Expt 11: Electrochemical Cells
Apr. 17	Expt 12: Silver Electrode Study of Equilibria <i>(*Tues., Apr. 18 is Student Achievement Day; the Tues. lab will make up this expt during check-out week on Apr. 25)</i>
Apr. 24	Check-out and lab clean-up