

General Policies

Importance of Laboratory Work. Chemistry is an experimental science; experience working in the laboratory, therefore, is essential to almost all chemistry courses. In the lab chemists develop methods to:

- identify unknown substances or to identify the components of a mixture (also known as a qualitative analysis)
- determine the concentration of one or more species in a sample (also known as a quantitative analysis)
- synthesize new compounds with interesting and useful properties
- investigate the chemical and/or physical properties of individual chemical species or of mixtures of chemical species

The particular foci of the Chem 260 lab are quantitative methods of analysis and investigating the thermodynamic, equilibrium and kinetic properties of chemical reactions.

Another important goal for this semester is to appreciate how chemists work and think, and the laboratory is the ideal place to do this. During the semester you will learn to:

- measure mass and volume with appropriate precision and accuracy
- use several routine quantitative methods of analysis, including titrimetry and spectrometry
- design and carry out experiments of your own design
- critically evaluate experimental data and to responsibly report experimental data
- work as part of a small research team

Text. There is no formal text for this lab course. Relevant materials for each lab and additional miscellaneous documents are available on the course's website. At times you may find other resources of use, such as your textbook or the *CRC Handbook of Chemistry and Physics*. You also should expect to use the library and the internet to search for information as well.

Laboratory Notebook. Experimentation is the framework on which we construct our knowledge of chemistry. A proper framework, of course, must have a foundation and in chemistry that strong base is the laboratory notebook. A chemist's laboratory notebook is his or her personal journal describing the experimental procedures and observations from which that knowledge is constructed. Our collective confidence in chemistry is built upon experimentation that is well documented. For this reason you will maintain a journal of your work in lab. Unlike your previous chemistry courses, however, you will not use a permanently bound notebook. Instead, you will maintain an electronic notebook consisting of a Word document with links to electronic data files.

Lab Reports. You will present the results of your work in lab through a series of written reports prepared as a group. Some of these reports are brief and others are more detailed. Specific requirements for each experiment are provided elsewhere in this manual.

Grading. Each of the four preliminary experiments is worth 25 points and the four open-ended projects are worth 100 points each. The work you complete as a group must include equal contributions from each student; for this reason, peer assessments of your work in lab and the instructor's assessment will account for an additional 25 points each.

Policy on Late Lab Reports. Due dates are intended to keep you from falling behind in your work. Because I value thoughtful, well-written work more than absolute deadlines, due dates for most assignments are intentionally flexible. Unless otherwise specified, there is no penalty for turning assignments in late if I am still in the process of grading the assignment; however, once I finish grading a set of assignments, any missing work receives a grade of 0 (zero) — no exceptions.

Flexibility in due dates is not a license to procrastinate and abuse of this policy will result in your loss of this privilege. To take advantage of this policy you must consult with me before the assignment's due date and you must show evidence of having made significant progress.

This policy does not apply to drafts, which are due, *without exception*, on or before the stated due date.

Academic Integrity. Although you may make frequent use of external resources (e.g. the internet, the library, other students) when completing assignments, it is important that the work you submit represents your understanding of the assignment. Failure to do so is unethical and a serious breach of academic integrity. Be sure to review DePauw's guidelines for academic integrity, which are included in the Student Handbook; in particular, review the examples of plagiarism. Although often unintentional, plagiarism is nevertheless a serious violation and can result in a significant reduction in your grade for an assignment or for the course.

A potential problem with group work occurs when you collect data as a group but are responsible for preparing an individual analysis of that data. When you are asked to work individually, it is not acceptable to share calculations, spreadsheets, or figures. Although you may discuss how to analyze your data, the work you turn in must represent your analysis of the data and your interpretation of the results.

Be sure to consult with me if you are unsure about any issue concerning academic integrity.

Attendance Policy. Attendance in lab is a requirement and arriving late is inconsiderate to other members of your group. If attendance becomes a problem, we will work together to find a suitable solution (which may include a reduction in grade for the lab on which you are working). Nevertheless, there are times when an absence is unavoidable due to illness, athletics, job interviews or other unforeseen events. Because lab work is completed as a group, all group members should be present when working in the lab. Please inform your group and your instructor of potential conflicts and then work with your group and instructor to find a mutually agreeable time for making up the lost time in lab. To be respectful of others, please limit your need to miss a regularly scheduled lab time and, if the absence is unavoidable, inform everyone as soon as you know of the conflict.

Making Good Use of Laboratory Time (*A Caution!*). You can complete laboratory experiments in the time available if you come to lab prepared. At a minimum you should read the experiment before coming to lab and think through what you need to accomplish during the laboratory period. You also should become familiar with the instrumentation and software by reading the relevant material on the course's website. For multiple-week projects your group should meet between laboratory sessions to evaluate data and to make plans for further work; this planning and discussion is critical to your success. Should you find that you are unable to complete lab work in the allotted time, then we will work together to improve your preparation.