Chem 1061
Lab project guidelines (addendum)

Refer to the lab projects webpage first for full guidelines. This handout is an addendum to those guidelines with an updated schedule and some revised requirements.

Lab project schedule:
Week 1: Introduction, decide topics, research – materials lists due by Wednesday at 5pm
Week 2: Collect and prepare materials, begin collecting data
Weeks 3-4: Continue collecting data, perform calculations, make conclusions, modify procedures as needed
Week 5: Finish collecting data, perform calculations, make conclusions, prepare written report and oral presentations
Week 6: (Dec 14) First 30 minutes set aside to polish presentations. Groups give presentations for remainder of lab period.
Dec 18: (Friday) Reports due to D2L by noon.

Formal report:
See the formal laboratory report guidelines on the chemistry department webpage. All sections listed on that page must be included in your formal report (including abstract).
The introduction will be far more significant in this report because this project should encompass many new concepts and procedures. Plan to write at least two double-spaced pages as an introduction. This will show any pertinent background to your studies, including any previous experimental information if you find it, conceptual chemical information, and practical applications of this information (how might this apply to everyday life, industry, education, etc.?)

It is important that any information that is not your own comes from a reputable, cited source. ***Your textbook must be one source*** for the conceptual chemical information, and can be used as a source for practical information as well. (This means your project must address some type of chemical concept that has been or will be covered in the first semester of this course.) ***Besides your textbook, you must also include at least three more authoritative sources.*** These can include journals, scientific magazine articles, or books. These should be written and reviewed or edited by a scientist, or approved as a government or educational publication. I suggest you use the Cambridge library pathfinder (http://www.ar.cc.mn.us/cclibrary/chemistrypathfinder.htm) to find information.

Be very careful that all your sources are considered authoritative. All those listed on the chemistry pathfinder page are considered authoritative, as are any peer-reviewed journal, a reputable science website (NewScientist, Scientific American, Chemistry.org, etc), a website authored by a respected scientist (a professor, researcher, or expert in the field). Practical consumer sources like howstuffworks.com and Mythbusters normally have sound information, but since the content may be authored by nonscientists, it should be validated wherever possible, and when not possible, that should be made clear in your writing. Due to its open nature, wikipedia.org is an extensive collection of useful information, and can be an excellent starting point for your research, but there is no way to know whether its data is authoritative or not. (Although Almost all articles on wikipedia have a list of outside links and sources which you may verify and use as sources, but do not cite the Wikipedia article itself.

You should also use the CRC Handbook or Merck index to look up appropriate physical constants, but these are not counted as your three authoritative sources.

Sources must be cited as endnotes. Use a superscript number within your text, and at the end of your report, in the references section, number your references in order that they were used in your report. Be sure your sources are properly formatted. Include access dates for WWW addresses, and include page numbers for books, magazines, or journals.

The last few paragraphs of your report need to transition into your own project. Clearly state the question you are trying to answer or the problem you are trying to solve, and write briefly about what experimental processes were used to solve it. Write in the past tense passive voice at all times!

The experimental section will be a detail of your procedures. Everything past tense, passive voice. Describe your procedure in sufficient detail that another chemist at your level would be able to duplicate your experiments, but no further detail is required.

The results section of your report should include all tables, charts, and graphs of the pertinent data you collected. Do not include huge amounts of probe-collected data in the results section of your report if it is graphed, instead include the raw data at the end as an appendix.

The discussion and conclusion need to thoroughly analyze your data. Be sure to cite all references, whether it be equations or concepts.

Presentation

Your presentation will be made in front of the class, and should be an abbreviated version of your formal report. You must use PowerPoint to make an electronic presentation, or use FrontPage to make a webpage which can be presented to the class. Both programs are installed on the chem lab computers as well as the student computer labs at the school.

Plan to speak for about 15 minutes, with 5 minutes of question and answer after your presentation. All group members must speak roughly equally in the presentation, but it's up to you how to divide it.

Most of the emphasis on your talk should be your experimental, results, and conclusions.
Give a small amount of background to bring the class briefly up to speed, though.