

## Chemistry 432 - Formal Laboratory Reports

### Laboratory Reports

Formal laboratory reports will be graded out of 20 points. This is in addition to the 15-20 points received for the data analysis, graded separately.

**Abstract (score of 2):** Writing abstracts is an important skill for several reasons. A person may first skim the abstract of a paper to decide whether or not to read the paper in more detail. Many secondary sources (*Chemical Abstracts - aka Scifinder Scholar*, for example) often publish only the abstracts of primary sources. Many of these electronic searching tools often allow a user to search a database only using document keywords and/or abstracts. Even in the case of the document keyword searches, it is important to write a good abstract, as keywords are often chosen by the search service, not the author. Consult the ACS journals for models of abstracts (synthetic papers in particular). An abstract should include the system(s) studied, the methods that were used for characterization or measurement of properties (i.e. by UV/Vis spectroscopy) and the results (with uncertainties on quantitative results, i.e.  $4.6 \pm 0.8$  mg/L). (Exceptional/very good=2; fair=1; poor=0.)

**Introduction (score of 3):** This section should put the experiment in perspective for the reader. If you look through the literature, you will see that what authors choose to put in this section varies. Some of this is due to differing journal expectations or the conventions of particular fields of chemistry, some is due to good/bad judgment on the part of the authors. For the types of experiments we will be doing, a good introduction will include a summarization of the theoretical background and a statement about what you are doing and why. (very good/above average = 3; good/fair = 2; Poor = 1; Missing=0)

**Experimental (score of 2):** This section should contain the experimental details of your work, in prose, and in past tense. This should not be a simple restatement of the published procedure. Another person with your background should be able to repeat your experiment based on your Experimental section. **Procedures taken from published sources should be referenced.** Raw data may be included here (calibration, synthetic yields, etc.) if appropriate. (Very good = 2; Fair/minor problems = 1; Poor/missing/major problems=0)

**Results and Discussion (score of 10):** This is where you will evaluate your results and discuss what they mean physically. Compare your results to literature values, if appropriate. Compare and contrast methods used, if appropriate. Calculate whatever quantities called for in the lab and address the physical reasons behind your results - what you expected and why, what you found, how that agrees or disagrees (and why). Include appropriate spectra, equations and calculations, (Exceptional(complete discussion/accurate conclusions) = 10; Very good/complete w/ only minor problems = 9; Fair/missing minor elements or too many minor problems = 7; Poor or missing major elements = maximum of 6; Missing=0.)

**Citations/Format/Spelling/Organization/Grammar (score of 3):** Make sure you reference any external materials you use - including the laboratory directions, your textbook and any Internet sites consulted. Specific citations should be made within the text, collecting the references as endnotes at the end of the laboratory report. **Use American Chemical Society (ACS) format for all citations - including websites** (Exceptional/Very good=3; Needs improvement in one area=2; Needs improvement in two or more area=1; Unacceptable=0)