

SYLLABUS

Chemistry 427 - Instrumental Analysis Laboratory - Winter 2007

Dr. Atkinson, SB2-476, atkinsond@pdx.edu

Course Website: Samla (<https://samla.pdx.edu/portal>)

Recommended Text Skoog, West, Holler and Crouch, **Fundamentals of Analytical Chemistry 8th ed.**, Brooks/Cole Thompson Learning, 2004 (same as the lecture). The laboratory experiments from Skoog (Chapter 37) are now contained on a CD which came with the text in Adobe portable document (pdf) format. The CD also contains an interactive set of readings and problems on various topics in the text, as well as a number of useful modules (e.g., an interactive periodic table.) For this course, the CD (and text) will be useful for general reference for the methods we will be using. The primary source of information about the labs we will do is a set of web-based materials (**webnotes**) which are described below.

Equipment: You are required to have chemical splash safety goggles. I also recommend a lab apron or lab coat and gloves, since you will be handling strong acids and bases in this course. You will need a laboratory notebook for recording data (you can use the one that you used in CH 321.) Notebooks are available at the bookstore and goggles and gloves are available at the chemistry stockroom for a nominal fee. You will need the goggles and notebook for the second officially scheduled lab period.

**** Make sure you attend lab the first week, or you may become disenrolled.****

You are responsible for all laboratory equipment checked out to you.

Preparation: Before coming to lab, you must have read over the **webnotes** (see below) for the days' experiment and any applicable information on the CD (or in the text) and have completed any prelab exercises that were assigned. Otherwise the TAs will be instructed **not** to let you begin experimental work. Unlike many of the labs you will take (but like the "real world") there are real dangers in this course – strong acids and bases, oxidizing agents, flames, etc. - all of which are minimized by proper preparation and comprehension of the task at hand. You should expect to spend most (if not all) of the scheduled five hours in the lab, either doing the experiments or working on the lab reports with the help of the WIC assistant.

Spreadsheets: As part of the preparation for lab, we recommend that you prepare a data analysis spreadsheet in **Excel** or some other data analysis/presentation program. I think you will find that this step streamlines and simplifies the data workup. There will be several workstations available for your use in the lab. However, if you have a laptop computer, it is useful to bring it to this class, and it should be possible to keep it away from the chemical hazards in the lab. Graphical results will only be accepted in computer generated format (no graph paper) in the lab reports.

Lab notebook: You are required to keep a laboratory notebook throughout the term and will hand it in for a grade near the end of the quarter (see **Grading** section below.) Have a look at the format suggested in section 21 (Chapter 2, section I) of the text. You will also need a synopsis of the procedure for each experiment to work from and spaces

for the data and observations to be recorded. If your computer crashes (heaven forbid), you should be able to write the lab reports based on your notebook.

Webnotes: The **webnotes** are the lab manual in this class: available via the web anywhere you have access to a computer and the internet. The **webnotes** provide you with specific information about the experiment that will be performed, as well as background on the methods and important safety information. You can print all of this information out on your computer at home and produce a “hardcopy” version if you wish, but I think you will find this to be unnecessary. In reading the **webnotes**, you can extract the essential procedural details and safety information for your notebook, while familiarizing yourself with the theory behind the experiment. {Hint: since the **webnotes** are an electronic media, you can “cut’n’paste” information to build procedures, which can be printed and taped into your lab manual.}

Reports and Grading: This laboratory is an official writing intensive class (WIC.) That means in addition to completing the labs and obtaining and evaluating results, you will be expected to write clear, substantial reports describing your work. The TAs, WIC assistant, and I will give you more information as we go through the course about the expectations of each lab report, and feedback on reports that have been submitted, to help you improve. There are eight graded labs, four of which are major reports, worth **100 points each**, and four of which are minor reports, worth **50 points each**. The only distinction between major and minor reports is the level of difficulty of the experiment and the length of the reports expected. One of the major lab reports will be handled slightly differently from the rest (the Pseudo Journal Article or PJA) – an explanation will be given during the lecture the first week of lab and in a resource document posted on the Samla site. Note that around 50% of the points for each lab are awarded based on your successful completion of the experiment, and the grader or your lab TA can choose to withhold any fraction of those points on any lab that you do not satisfactorily attend and participate in. We will check your lab notebook at the end of the term (**50 points**) and the TA will provide an assessment of your general preparation and lab technique (**50 points**) to yield a total of **700 points possible**. Your grade will be determined by a normal curve (mean = B/C break) constructed from the total points obtained in the laboratory part of the class. There is no connection between the lecture and lab in terms of grades.

Missed lab / tardiness policy: YOU MUST TRY TO ATTEND ALL SCHEDULED LABORATORY MEETINGS. If you miss a lab you **must** notify your laboratory instructor as soon as possible, but well before the next laboratory period. The TAs have office hours and email addresses, so it is easy to contact them. There will be one make-up laboratory session at the end of the term. If you miss a laboratory meeting, you **must** make it up during the course or at the make-up lab. If you miss two or more labs, you **will fail** the course. **Tardiness:** If you are more than 15 minutes late to lab, you will be marked late, and may be told to leave, depending on how late you are. If you are repeatedly late, you **will fail** the course.