COLLEGE OF CHEMISTRY COURSE GUIDE (../INDEX.HTML)

CHEM 4A - GENERAL CHEMISTRY AND QUANTITATIVE ANALYSIS (4 UNITS)

COURSE OVERVIEW

SUMMARY

Chem 4A is the first of two classes in the general chemistry classes offered in the undergraduate level for College of Chemistry majors. This class is similar to Chem 1A, but is more thorough and difficult than the 1 series. This course reviews the fundamentals of chemistry usually taught in high school, such as chemical reactions and equilibria, and introduces new concepts including quantum mechanics and thermodynamics. In addition to lectures, there are weekly four-hour lab sessions that somewhat correlate to what is being taught during lecture. There, students learn quantitative laboratory techniques that are essential to most chemistry labs.

PREREQUISITES

High school chemistry, Math 1A (math1a.html) (can be taken concurrently)

Fall only

TOPICS COVERED

- Introduction to Chemical Reactions
- Structure of Matter and Quantum Mechanics
- Thermodynamics and Gas Laws
- Equilibria, Acids and Bases, Phases

WORKLOAD

COURSEWORK

- 3 midterms
- 1 final exam based on lecture material (finals week)
- ~8 Problem Sets
- 10 Experiments/Lab Assignments
- 2 Formal Lab Reports

TIME COMMITMENT

3 hours of lecture per week and 4 hours of lab section per week.

CHOOSING THE COURSE

WHEN TO TAKE

This class is required for all College of Chemistry majors. **It is offered only in the fall.** This should be taken the first semester of college.

WHAT NEXT?

- CHEM 4B - General Chemistry and Quantitative Analysis (chem4b.html)

ADDITIONAL COMMENTS AND TIPS

This is the first chemistry class offered, and reviews many concepts that were taught in high school chemistry classes, especially AP or IB chemistry. Thus, it's highly recommended that students have this prior knowledge because this course is very fast paced by reviewing these concepts and more in just half the time of most high school classes. However, one may replace this class with Chem 1A if you do not have the proper background with permission from an advisor.

Although the material for the course is generally not difficult, the problem sets and laboratory post-labs can be time-consuming. It is recommended for students to collaborate and work with others on these assignments. For the lab portion of the course, doing the experiments are not particularly difficult, but can sometimes be frustrating. However, the post-lab assignments that are completed outside the laboratory time are tedious and will require a lot of time. They may sometimes require graphing or multistep

answers, so make sure to budget time to do these as well as the pre-lab assignments. Post-labs and pre-labs are due weekly. There are two formal laboratory assignments that are also time-consuming.

Most students will struggle in the quantum mechanics portion of the course. It is recommended to read the textbook and attend as many review sessions from GSIs as possible to understand the new material. In addition, there are many midterms for this course, so ensure you are caught up with the material because it will feel fast paced.

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