

Syllabus for H90:

The Idiom and Practice of Science Chemistry (Spring 2017)

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- **Overview:** This is not a watered down version of AP chemistry. You will not learn how to do chemistry in this course. You will not be able to make solvents, predict boiling points, or measure greenhouse gases at the end of this course. Instead, this is a course that explains to you what chemistry is, and what chemists do. It will be a wild ride in 10 weeks of intense interactive lectures and discussions. Most homework will consist of computer games and reading cartoons. Mostly, the only math you will need is the ability to count, but you will need to do that very, very well. In return for this very light homework load, I only ask for your full undivided attention (no surfing, no emails, no skypeing) during class/discussion time.
- The course will be divided into 3 halves. In the first half, we will rapidly review basic principles of modern chemistry, leaving out all the really boring bits. In the second half, we will see if we can use these principles to better inform ourselves on such compelling issues as the ozone hole, climate change, and nuclear power. In the third half, we will learn all about quantum mechanics (I'm not kidding), making you the most erudite non-science majors on the planet.
- **Organization:** There will be no organization. Any resemblance of one week to the next will be purely coincidental. There will be at least one midterm, possibly two or three or four. There will

also be at least one movie, a visit to an inorganic chemistry lab, and a visit to a nuclear reactor. If anything goes seriously wrong on the last visit, you will not need to worry about the later midterms (or anything else).

- **Objective:** At the end of this course, you will understand and be able to apply some basic principles of chemistry to the everyday world. You will also be able to totally dissect popular news accounts about chemically-oriented subjects. You will be able to read and even enjoy nerdy accounts from, e.g., Scientific American. You will even be able to extract a little from technical reports (scientific papers). (But see last sentence of Organization).
- **Goals for the quarter:** Stimulate your interest in chemistry • Explain what chemistry is, how it is done, and why it works • Understand chemistry • Microscopic view = molecules • Strange world of quantum mechanics

Course activities:

- Each week: HW due on Tues at noon • Three parts:
 - Answers to simulation questions – Written response to some reading – Quantitative exercises
- Also: During the quarter – Visit an inorganic lab (cool colors) – Visit a nuclear reactor

Exams and grades:

- Two midterms: Halfway, and on last day. • Final: Cumulative • Quizzes: Every day, can drop 15% of them • HW: Due Monday at 10am, can drop lowest 2. • Grade:

– 30% per midterm, 10% inUclass quizzes, 30% HW, 50% for final (optional).