**Course Outline**

Course: NATS 1211, Science of Contemporary Issues
Term: Autumn 2005
Instructor: Dr. Joseph J. Bozell

*Course Description:* This one quarter course is an overview of the basics of general and organic chemistry for the nonmajor. The intent is to enhance your skills in understanding the concepts that a chemist deals with on a regular basis, and to illustrate them through real world examples. Through reading and working with this information, you will be better able to understand the impact and influence of chemistry in today's world.

*Assignments:* You will be responsible for completion of a series of homework assignments. **All homework assignments are due every Friday at the beginning of class. Late homework will not be accepted, and will be given a grade of zero.** The homework will be checked for completeness, and one question will be chosen at random for grading in detail.

*Ethics:* My most important expectation is that you will conduct yourself ethically and honestly. Cheating, copying, plagiarism (from each other or the internet) will not be tolerated.

*Quizzes and examinations:* There will be both quizzes and comprehensive examinations over the quarter. On most Fridays, there will be a 25 minute quiz at the beginning of class. There will also be two 50 minute comprehensive examinations and a 1hr, 45 minute final examination during the quarter.

**Read the following carefully:**

**1) There will be no makeup exams given. If you have a need to take the exam outside of the normal exam time, you will need to have an exceptionally good excuse AND will need to notify me at least one week in advance of the exam. Regardless, I reserve the right to deny the request, as special examinations are generally unfair to the remainder of the class who are able to take the exam at the assigned time.**

**2) There are no makeup quizzes given, and no quizzes will be given outside of normal class time. Only the five best scores out of six quizzes will be counted, i. e., you can drop one quiz without penalty.**

Grading – final grades will be based on a curve (a distribution of scores).

Homework – 100 points
Quizzes – 100 points
Comprehensive exam 1 – 150 points
Comprehensive exam 2 – 150 points
Final exam – 300 points
Lab reports – 200 points

Total – 1000 points

**Laboratory and Lab Reports**

1) The total lab report points will be prorated down to 200 points in calculating the final grade.

2) You must attain at least 50% (100 points) in lab in order to pass the course.

3) Attendance in mandatory for the laboratory part of the course. You are required to do EVERY lab. You must attend the lab section in which you are registered.

4) **There are no makeup labs.** If you miss your lab for any reason, you must make it up in the same week the lab is offered. If you cannot make your scheduled lab time, you MUST get permission from your teaching assistant before changing.

5) **Proper eye, skin and foot protection is required.** In general, this will mean no shorts or open toed shoes will be allowed in the laboratory. Exceptions may be made depending on the nature of the laboratory experiment. A student refusing to comply will have to leave the lab for the day.

6) A format for all lab reports will be provided.

7) If you were working in groups, please note the full names of your partners on your report. Give credit where credit is due.

8) Spelling and grammar will be considered in grading of your report.

9) Reports are due by the beginning of lab the week following completion of the lab.

10) Late reports will be assessed a 10% penalty per day. Reports more than 5 days late will not be counted.

11) Concepts demonstrated in the labs may show up as questions on the exams.

**Class Schedule 2005**

| Week | Topics | Chapter | Homework (DUE EACH FRIDAY) | Laboratory |
|---|---|---|---|---|
| Sept 13<br>15<br>17 | Course introduction, expectations, grading<br>The basics: chemistry, scientific method, measurements, conversions | D1 | Memorize elements 1-36, symbols and names | No lab this week |
| Sept 20<br>22<br>24 | The basics: matter, periodic table, elements and compounds<br>**QUIZ 1** | D2 | D1: 1.23 – 1.28, 1.37 – 1.40, 1.53 – 1.65, 1.71, 1.73, 1.75 – 1.79; CT 1,3 | How to Lie With Statistics |
| Sept 27<br>29<br>Oct 1 | The basics: atoms, electrons, protons, neutrons, chemical formulas<br>**QUIZ 2** | D3 | D1 2.11 – 2.12, 2.15 – 2.24, 2.27 – 2.28; CT 4 | Material Safety Data Sheets |
| Oct 4<br>6<br>8 | The basics: chemical bonds, molecular shapes, Lewis formulas, valence and the octet rule<br>Help session for 1st exam | D4 | Memorize list of ions; D3: 3.15–3.32, 3.51, 3.53-3.54; CT 1 | Chemical Bonds and Molecular Models |
| Oct 11<br>13<br>15 | **MONDAY! 1st comprehensive exam**<br>Guest lecture: *Moody, Sullen Girls, Angry, Hostile Boys*<br>Organic chemistry: introduction | D11 | D4: 4.29–4.30, 4.33–4.48, 4.53–4.56; CT 2 | Gatorade |
| Oct 18<br>20<br>22 | Organic chemistry: functional groups, nomenclature, alkanes, alkenes, arenes<br>**QUIZ 3** | D12 | | Mystery Lab |
| Oct 25<br>27<br>29 | Organic chemistry continued<br>Guest Lecture: *Biomass*<br>**QUIZ 4** | CIC4 | Memorize list of organic compounds; D11: 11.19–11.21, 11.24, 11.31–11.52 (odd); CT 1 | Chromatography |
| Nov 1<br><br>3<br>5 | Organic chemistry: energy in society, petroleum refineries, renewable feedstocks, sugars, oils<br>Guest lecture: *Air Quality Measurement*<br>**QUIZ 5** | CIC10 | Memorize list of functional groups; D12: 12.17-12.20, 12.21-12.30(odd), 12.49–12.52 | Soil Moist – The Principle of Disposable Diapers |
| Nov 8<br>10<br>12 | Nuclear chemistry<br>Help session for 2nd exam<br>**FRIDAY! 2nd comprehensive exam** | CIC7 | TBD | Soaps and Fats |
| Nov 15<br>17<br>19 | Biochemistry basics: the genetic code, proteins, the chemistry of diseases<br>**QUIZ 6** | CIC12 | TBD | Help Session for Final in all labs |
| Week of Nov 22 | **Final examination** | | | |