

# CHEM 23/25: OUTLINE OF GENERAL CHEMISTRY

Fall 2011

**LECTURE A:** CHEM 23 (90101) & CHEM 25 (91408), T,Th 8:30AM-9:45AM, Angell B-106

**LECTURE B:** CHEM 23 (91822) & CHEM 25 (91409), M,W,F 8:30AM-9:20AM, Angell B-106

## GENERAL INFORMATION:

**Instructor:** Steve Flemer

**Email:** sflemer@uvm.edu

**Office:** A-316 Cook

**Office Hours:** M W F 9:30 AM - 10:30 AM

T Th 10:00 AM – 11:00 AM

**Class Website:** <http://www.uvm.edu/~sflemer/CHEM23.htm>

**Lab Videos:** <http://www.uvm.edu/~chem/?Page=23Videos.html>

**Lecture:** The lecture will primarily be used to cover new material. Included in this syllabus is a tentative schedule covering the text material and the corresponding problems to be worked from each chapter.

**Exams:** Hour exams are given on Wednesday nights from 6:15-9:15 PM.

	<b>Lecture A</b> (T,Th; 8:30-9:45 AM)	<b>Lecture B</b> (M,W,F; 8:30-9:20 AM)
Exam 1	Wed, Sept. 21; 101 Fleming	Wed, Sept. 21; 103 Rowell
Exam 2	Wed, Oct. 12; 101 Fleming	Wed, Oct. 12; 103 Rowell
Exam 3	Wed, Nov. 2; 101 Fleming	Wed, Nov. 2; 103 Rowell
Exam 4	Wed, Nov. 30; 101 Fleming	Wed, Nov. 30; 103 Rowell
Final Exam	Tue, Dec. 13; 10:30AM-1:15PM; B106 Angell	Fri, Dec. 9; 10:30AM-1:15PM; B106 Angell

**Absences from exams:** Students with legitimate excuses (ie: a UVM-related conflict) will be permitted to take an exam sometime during the day that it is given to the rest of the class that evening. This must be cleared with the instructor first, however. **Makeup exams will not be administered after the scheduled exam time.**

**Review Sessions:** I will normally have an Exam Review Session on the Sunday afternoon previous to impending exams. Weekly SI sessions will also be starting shortly after the beginning of classes.

**Problems:** Solutions to recommended problems are in the back of the text. While it is strongly suggested that you do as many problems as possible, the problems are not collected and do not count towards your grade. To encourage students to do these problems, at least 20% of the point value of each exam will be taken directly from these text problems.

## **REQUIRED TEXTBOOKS:**

**Text:** "Introductory Chemistry" 3<sup>rd</sup> edition, by Nivaldo J. Tro sold at the UVM bookstore.

**Lab Manuals:** "Chemistry 23, Experiments " is sold at the first floor stockroom, A-143 Cook, for \$10.00. (**Not required for CHEM 25 students**).

"Working Safely With Chemicals" 2<sup>nd</sup> ed edited by Gorman is available at the UVM bookstore (**Not required for CHEM 25 students**).

**Scientific Calculator:** A standard scientific calculator is a requirement for the exams.

**Note: Graphing calculators are not allowed.**

## **LABORATORY:**

**Time and Room:** See your class course schedule as to your assignments.

**Attendance:** Students must attend the lab section they are assigned to. Official documentation of sickness or family crisis is required if a lab is missed. **If more than 2 labs are missed, this results in a failure for the course.** In order to take a lab at a time other than your assigned time one must obtain the permission of the TA and instructor.

**Breakage Card:** A breakage card (\$40.00) must be purchased from the first floor stockroom, A-143 Cook, prior to your first lab. The \$40.00 is refundable, and if you are careful you should get most of it back. Remember, you must have it with you to be admitted into lab.

**Safety Eyewear:** OSHA approved safety glasses or goggles must be worn by everyone once any experimentation has started in any area of a lab room. Safety eyewear can be purchased at the UVM bookstore.

**Foot Wear:** Only shoes that cover the toes are permitted in the lab. Sandals and open-toed shoes are not permitted.

**Lab Notebook:** A bound notebook is required for recording lab data.

## **ACADEMIC INTEGRITY:**

Offenses against the Code of Academic Integrity (ie: Cheating) are deemed serious and insult the integrity of the entire academic community. Any suspected violations of the code are taken very seriously and will be forwarded to the Center for Student Ethics & Standards for further investigation.

## COURSE GRADE FOR CHEM 23 STUDENTS:

### 1. Points needed to obtain a specific grade

930 = A	870 = B+	790 = B-	670 = C	610 = D+	560 = D-
900 = A-	820 = B	760 = C+	640 = C-	580 = D	less than 560 = F

### 2. How to calculate your points:

- a) **Class = 800pts**
- |   |
|---|
| 4 hr Exams = 4 grades                           |
| 1 Final = <u>2</u> grades                       |
| 6 grades - 1 grade = 5 grades x 1.6 = class pts |

I will drop your lowest exam grade. If the final is your lowest grade it will only count once. If one of the hour exams is your lowest grade then one of the grades for the final will replace that low exam grade. The 1.6 factor is because each test was only worth 100 pts, and therefore the maximum number of points obtainable from the tests are 500. In order to raise this to 800 pts you must multiply the 500 x 1.6 = 800.

#### Example:

	Ex-1	Ex-2	Ex-3	Ex-4	Final x 2
Actual Scores	85	45	78	77	75 75
Scores Counted	85	75	78	77	75

$$\text{Total pts} = 390 \times 1.6 = 624 \text{ pts from class}$$

### b) **Laboratory = 200 pts**

Notebook / Prelab	30 pts
Lab reports	80 pts
Quizzes	65 pts
Technique	<u>25</u> pts
	<b>200 pts</b>

3. Determination of grade: Add up your points from the class and lab and then use the chart at the beginning to determine your course grade.

Example: 624 class pts + 160 lab pts = 784 total pts = C+

## COURSE GRADE FOR CHEM 25 STUDENTS:

Since there is no laboratory component to your grade, will be graded on their exam scores exclusively. Your 5 highest exam scores will be multiplied by 2 (rather than 1.6).

# LABORATORY SCHEDULE

<u>Date</u>	<u>Experiment</u>	<u>Description</u>
12 - 15 SEP	1	Metric System, Density
19 - 22 SEP 26 SEP - 29 SEP	2	Qualitative Analysis
3 - 6 OCT	3	Determination of Nitrite in Meat
10 - 13 OCT	4	Energy of a Chemical Reaction
17 - 20 OCT	5	Alum from the Aluminum in a Beverage Can
24 - 27 OCT	6	Determination of the Acid Content in Food Products
31 OCT - 3 NOV	7	Acid Neutralizing Potential of Antacids
7 - 10 NOV	8	Freezing Point Depression
14 - 17 NOV	9	Limestone in Soil
21 - 24 NOV	<b>THANKSGIVING</b>	NO LABS
28 NOV - 1 DEC	10	Acid-Base Equilibria and Buffers <b>CHECKOUT</b>

# TENTATIVE LECTURE SCHEDULE

<u>CHAPTER</u>	<u>SUGGESTED PROBLEMS</u>
<b>2</b> (Measurement & Problem Solving)	5,27,29,31,35,39,43,47,55,59,67,73,79,83,91,93,103,107,115
<b>3</b> (Matter & Energy)	11,13,15,21,31,33,35,39,47,59,63,71,75,77,81,89
<b>4</b> (Atoms & Elements)	7,21,35,37,43,45,47,49,51,53,59,61,63,77,79,89,93,97,101,107
<b>9</b> (Electrons in Atoms & the Periodic Table)	25,27,29,47,51,53,55,57,59,63,71,75,77,79,83,87,91,93,95

## **22 SEPT.**

## **EXAM 1**

<b>10</b> (Chemical Bonding) (no 10.6)	27,29,33,35,39,43,47,49,61,63,67,69,81,85,87,91,99,101
<b>5</b> (Molecules & Compounds: 5.1-5.8, 5.10)	23,25,33,47,49,53,55,57,59,61,65,67,69,77,93
<b>6</b> (Chemical Composition)	7,19,25,27,37,45,49,57,59,65,71,79,85,89,95,97,115,117
<b>7</b> (Chemical Reactions: 7.1-7.4, 7.10)	43,51,53,55,57,89 <sub>(a&amp;c)</sub> ,93,95

## **13 OCT.**

## **EXAM 2**

<b>8</b> (Quantities in Chemical Reactions)	9,11,17,23,25,35,37,43,45,49,51,55,57,63,67,71,73
<b>13</b> (Solutions)	25,43,51,57,61,65,69,73,79,87,93,97,99,101,103,125
<b>11</b> (Gases)	19,29,37,39,43,53,55,59,63,67,73,75,83,89,91,93,97,101,103

## **3 NOV.**

## **EXAM 3**

<b>12</b> (Liquids, Solids, & Intermolecular Forces)	9,17,19,25,29,51,59,67,69,71,73,75,81,93
<b>15</b> (Chemical Equilibrium:15.1-15.10, 15.12)	7,15,21,37,45,47,49,51,53,55,59,61,63,67,75
<b>14</b> (Acids & Bases)	11,19,23,29,37,45,61(a),67,69,71,75,77,79,81,85,87,111,119

## **1 DEC.**

## **EXAM 4**

<b>17</b> (Nuclear Chemistry)	7,11,13,25,53,57,61,63,71,73,77,81,83,85
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## **FINAL EXAM (Comprehensive)**