CHEM 23/25: OUTLINE OF GENERAL CHEMISTRY

Spring 2015

LECTURE : CHEM 23 (10112) & CHEM 25 (10113), T,Th 8:30AM-9:45AM, Angell B-112
RECITATION FOR BOTH CLASSES: T 7:00-9:30 PM, Angell B-106; LABS for CHEM 23 students only.

GENERAL INFORMATION

Instructor: Dr. David Pratt **Email**: dpratt1@uvm.edu

Office: A-109 Cook.

Office Hours: Mon. 9:00 – 11:30 AM; Tues. & Thurs. 10:00 – 11:30 AM.

Class Website: https://Bb.uvm.edu

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

Lecture: The lecture will provide an overview of all material to be discussed in this course. Key topics include the chemical world, measurement and problem solving, matter and energy, the chemistry of the elements and their compounds, and the concepts of chemical bonding, chemical kinetics, and chemical equilibrium. Brief introductions to the topics of organic chemistry, biochemistry, and nuclear chemistry will be included.

REQUIRED TEXTBOOKS

Text: "Introductory Chemistry", 5th edition, by Nivaldo J. Tro, sold at the UVM bookstore.

Mastering Chemistry: An on-line homework and tutorial system, also available at the bookstore.

Lab Manuals: "Chemistry 23 Experiments " is sold at the first floor stockroom, A-143 Cook, for $15.00. **(Not required for CHEM 25 students)**.

Scientific Calculator: A standard scientific calculator is a requirement for the exams.
Note: Graphing calculators are not allowed.

CLASS ACTIVITIES

Pre-lecture questions, lecture participation, homework, office hours, recitations, labs, and exams.

CLASS SCHEDULE

Date	Topic	Homework Due
January 13	The Chemical World (Chapter 1)	January 20 (#1)
January 15	Measurement and Problem Solving (2)	January 20(#1)
January 20*, 22	Matter and Energy (3)	January 27(#2)
January 27*	Atoms and Elements (4)	February 3(#3)
January 29	Molecules and Compounds (5)	February 3(#3)
February 3*, 5	Chemical Composition (6)	February 10(#4)
February 10*	Review (AM) and Exam (1-6) (PM)	---
February 12	Chemical Reactions (7)	February 17(#5)
February 17*, 19	Quantities in Chemical Reactions (8)	February 24(#6)
February 24*, 26	The Periodic Table (9)	March 10(#7)
March 3,5	Spring Break	---
March 10*, 12	Chemical Bonding (10)	March 17(#8)
March 17*	Review (AM) and Exam (7-10) (PM)	---
March 19	Gases (11)	March 24(#9)
March 24*	Liquids, Solids, and Intermolecular Forces (12)	March 31(#10)
March 26	Solutions (13)	March 31(#10)
Mar 31, Apr 2	Acids and Bases (14)	April 7(#11)
April 7*	Chemical Equilibrium (15)	April 14 (#12)
April 9	Oxidation and Reduction (16)	April 14 (#12)
April 14*	Review (AM) and Exam (11-16) (PM)	---
April 16	Nuclear Chemistry (17)	April 21 (#13)
April 21*, 23	Organic Chemistry (18)	April 28 (#14)
April 28*	Biochemistry (19)	---
Date to be determined	**Final Exam (Chapters 1-19)**	Rooms to be determined.

Problems: Weekly problem sets will be assigned and graded on Mastering. Solutions to the assigned problems will be discussed in the evening recitations, marked with asterisks.

Review Sessions: Exam review sessions will be scheduled on the lecture day immediately preceding the exam to be given that evening.

Absences from exams: Makeup exams, if permitted, will not be given *after* the scheduled exam time. Students with legitimate excuses (*i.e.;* a UVM-related conflict or family emergency) will be permitted to take early exams providing they obtain permission from Dr. Pratt at least one week in advance of the scheduled exam time.

GRADING

Final grades will be based on the percentage of total available points received The available points include 100 for pre-lecture and office hour participation, 100 for homework, 200 for lab (Chem 23 students only), 200 for hour exams (best 2 of 3), and 200 points for the final. The percentages of points needed to obtain a specific grade are as follows:

A (90% or higher), B (75%), C (60%), D (50%) and F (49% or lower).

MasteringChemistry®

Student Registration

In this course you will be using MasteringChemistry®, an online tutorial and homework program that accompanies your textbook. *If you have joined a MasteringChemistry course before and can still log in*:
Save time by following the guide for joining another course found under the STUDENT heading at www.masteringchemistry.com > *Tours & Training> Getting Started* instead of using the steps below.

What You Need:

- ✓ **A valid email address**
- ✓ **A student access code**
  (Comes in the Student Access Code Card/Kit that may have been packaged with your new textbook or that may be available separately in your school's bookstore. Otherwise, you can purchase access online at www.masteringchemistry.com.)
- ✓ **The ZIP or other postal code for your school: 05405**
- ✓ **A Course ID: DWPRATT10112**

1. Register

- Go to www.masteringchemistry.com and click **Students** under **Register**.
- To register using the student access code inside the MasteringChemistry Student Access Code Card/Kit, select **Yes, I have an access code**. Click **Continue**.

  –OR– *Purchase access online*: Select **No, I need to purchase access online now**. Select your textbook, whether you want access to the eText, and click **Continue**. Follow the on-screen instructions to purchase access using a credit card. The purchase path includes registration, but the process is a bit different from the steps printed here.
- **License Agreement and Privacy Policy:** Click **I Accept** to indicate that you have read and agree to the license agreement and privacy policy.
- Select the appropriate option under "Do you have a Pearson Education account?" Continue to give the requested information until you complete the process. The **Confirmation & Summary** page confirms your registration. This information will also be emailed to you for your records. You can either click **Log In Now** or return to www.masteringchemistry.com later.

2. Log In

- Go to www.masteringchemistry.com.
- Enter your Login Name and Password that you specified during registration and click **Log In**.

3. Join Your Instructor's Online Course and/or Open Self-Study Resources

Upon first login, you'll be asked to do one or more of the following:

- **Join a Course** by entering the **MasteringChemistry Course ID** provided by your instructor. If you don't have a Course ID now, you can return to join the MasteringChemistry course later. When you join a course, you may also be asked for a Student ID (follow on-screen instructions).
- **Explore the Study Area** or **Launch Your eText**, if these resources are available for your textbook.

To Access MasteringChemistry Again Later

Simply go to www.masteringchemistry.com, enter your Login Name and Password, and click **Log In**.

After you have joined a course: You can open any assignments from the **Assignments Due Soon** area or from the **Assignments** page. For self-study, click **eText** or **Study Area**, if these options are available.

Support

Access Customer Support at http://www.masteringchemistry.com/support, where you will find:

- System Requirements
- Answers to Frequently Asked Questions
- Registration Tips & Tricks video
- Additional contact information for Customer Support, including Live Chat

LABORATORY

Time and Room: Labs begin on January 26. See your class course schedule regarding your assignments.

Attendance: Students must attend the lab section to which they are assigned. 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

Each student in this class is expected to be familiar with the UVM Code of Academic Integrity http://www.uvm.edu/policies/student/acadintegrity.pdf The principal objective of this code is to promote an intellectual climate that is consistent with and promotes the goals of a higher education. Offenses against this code in the lectures, labs, and/or exams, and on homework, will be deemed serious and will be reported to the Center for Student Ethics & Standards for further investigation. These offenses include copying homework, plagiarism, sharing results with other students in the lab, falsifying lab reports, and cheating on exams. If you have any concerns that a standard in this code may have been violated, you are expected to report it to Dr. Pratt or to Dr, Cardillo immediately.

CHEMISTRY 23

Spring 2015

DATE	EXP #	Exp Title	PAGE
26 - 29 JAN	1A & B	**LAB CHECK-IN** 1A. The Metric System 1B. Density of a Metal	 12 13
2 - 5 FEB	2	Qualitative Analysis	16
9 - 12 FEB	2	Finish Qualitative Analysis	
16 - 19 FEB		**OFF – PRESIDENT'S DAY**	
23 - 26 FEB	3	Determination of Nitrite in Meat	22
2 - 5 MAR		**OFF - SPRING RECESS**	
9 - 11 MAR	4	Energy of a Chemical Reaction	26
16 - 19 MAR	5	Alum from the Aluminum in a Can	31
23 - 26 MAR	6	Acid Content in a Food Product	34
30 MAR - 2 APR	7	Acid Neutralizing Potential of Antacids	38
6 - 9 APR	8	MW from Freezing Point Depression	41
13 - 16 APR	9	Limestone in Soil	46
20 - 23 APR	10	Acid-Base Equilibria & Buffers **LAB CHECK-OUT**	51