

University of Missouri-St. Louis
Department of Chemistry and Biochemistry

Syllabus for Chemistry 1111

Introductory Chemistry I

Spring 2013

Lecturer: Prof. James Chickos (Office B435); 516-5377; e-mail: jsc@umsl.edu

Lecture: T, R 9:30-10:45, room 102 Benton Hall

Office Hours: T, R 10:45-11:30 AM; 2:00-3:00 PM. Students who need help at other times are free to call or drop by the office.

Laboratory and Workshops Coordinator: Paul Gontarz e-mail: pmg2m9@umsl.edu

Office Hours: Monday morning at 11am and by appointment any other time

Workshop section/time/room/instructor)

A1	11-12:15	R	B240	Lisa Gouwens	e-mail: lkpb7@umsl.edu
A2	11-12:15	R	B241	Silke Lopez De Mesa	e-mail: slpp5@umsl.edu
A3	11-12:15	T	B241	Andrew Kamadulski	e-mail : ajkwf9@umsl.edu
A4	2:00-3:15	R	B241	Erin Martin	e-mail: etmn6f@umsl.edu
A5	2:00-3:15	R	B240	Joe Meisel	e-mail: jwm5hd@umsl.edu
A6	2:00-3:15	T	B241	Silke Lopez De Mesa	e-mail: slpp5@umsl.edu
A7	2:00-3:15	T	B242	Andrew Kamadulski	e-mail : ajkwf9@umsl.edu

Laboratory section/time/room/instructor)

AA1	11-2:00	T	B309	Lisa Gouwens	e-mail: lkpb7@umsl.edu
AA2	11-2:00	T	B310	Silke Lopez De Mesa	e-mail: slpp5@umsl.edu
AA3	11-2:00	R	B309	Andrew Kamadulski	e-mail : ajkwf9@umsl.edu
AA4	2:10-5:10	T	B309	Paul Gontarz	e-mail: pmg2m9@umsl.edu
AA5	2:10-5:10	T	B310	Maria Jose Scuderi	e-mail: scuderim@umsl.edu
AA6	2:10-5:10	R	B309	Lisa Gouwens	e-mail: lkpb7@umsl.edu
AA7	2:10-5:10	R	B310	Maria Jose Scuderi	e-mail: scuderim@umsl.edu

Text and Supplies

Lecture: J. E. McMurry and R. C. Fay, "Chemistry", 6th Ed., Pearson/Prentice, 2012

Workshop: McMurry and Fay, "Chemistry", 6th Ed., Prentice Hall, Inc.

Laboratory: Approved safety glasses. Material for each laboratory will be available at www.umsl.edu/~chickosj/.

Additionally: An electronic calculator – capable of performing logarithmic and square root calculations; cell phone calculators or similar electronic devices are not acceptable during examinations.

SAFETY GLASSES MUST BE WORN AT ALL TIMES IN THE LABORATORY (glasses may be purchased at the campus bookstore or the Chemistry storeroom) Note: The chemistry storeroom does not loan safety glasses to students after check-in. Safety glasses may be purchased, cost ca. \$3. Sunglasses may not be substituted for safety glasses.

General Comments: Chemistry 11 provides an introduction to general chemistry for science majors. It is required of all students majoring in chemistry, biology and physics, as well as those students pursuing pre-pharmacy, -medicine, -veterinary medicine, -optometry, and some pre-engineering courses of study. Chemistry 1111 satisfies the science portion of the general education requirement.

Prerequisites: Mathematics through college algebra and trigonometry (may be taken concurrently).

Lecture. Systematic preparation is very important in Introductory Chemistry since the material covered is extensive and "catch up" is difficult. Much of the material covered in the lectures will be available on Powerpoint slides in addition to your textbook. It is recommended for pedagogic reasons that you also take a comprehensive set of lecture notes using the Powerpoint slides as a template. The lectures will be available at on MyGateway. Most of the material covered in the lectures is in the text. Material emphasized in lecture is more likely to appear on the examinations.

Workshops. The workshop is designed to provide an experience that is conducive for cooperative active learning. There are no make-up sessions for workshops. Workshop materials are available from your text or will be available on MyGateway. You will need to logon to My Gateway. umsl.edu either using your own computer or a computer in any one of the UMSL student computer labs. Be sure to check My Gateway before attending the workshop. Come prepared to ask questions about concepts or problems with which you need help. This could be associated with the lab, lecture or practice examination that will be made available during the course of the semester. The quiz material will be based on material assigned for homework and covered in the previous workshop. Your lowest quiz score will be dropped. The workshop leaders will try to make the time you spend with them as productive and educational as possible. Most of the workshop activities will involve working with others in your section to solve problems and discuss concepts. Workshops meet every week. Attendance is required in the seventy-five minute workshop (RSD) assigned and will make up a portion of your grade as noted below. The first workshops, the week of Jan. 19, will cover scientific notation and significant figures. The time will be used to review problems in Chapter 1. The first quiz will be given during week of Jan 25& 27. Be sure to bring your textbook and calculator to each workshop.

Laboratory. Chemistry is an experimental science. Although the experiments you perform in introductory chemistry are relatively simple and may be considered somewhat primitive relative to the computerized standards of today's modern laboratories, their goal is to reinforce the experimental nature of chemistry and to expose you to some of the concepts and logic that have allowed chemistry to evolve to its present day level. An effort has been made to sequence the experiments with topics covered in lecture; this is not possible in all cases. Additional details regarding the laboratory and the schedule of experiments are provided below.

Homework. A series of homework problems are assigned below for each chapter. You will work on these problems during the workshop. One of these problems assigned the previous week will be used for quiz the following week. Each quiz will be worth a total of ten points. You will be required to solve these problems for credit for each of the eleven chapters in your text covered

this semester. The results of your best ten quizzes will be used in computing your homework test score.

Remember: In addition to My Gateway, some course material may also be available at the following address: <http://www.umsl.edu/~chickosj/chem11/>.

Announcements and information for the labs and workshops will appear on the course site in My Gateway so you should check this site periodically.

Bring your textbook and your calculator to every workshop and laboratory meeting; your calculator to every exam.

Calculators or cell phones that can store, display, or access text and formula information will not be allowed to be used on exams.

Cheating on tests or quizzes, falsification of lab data or notebook entries, or malfeasance of that sort, will result in a grade of zero for the test, quiz or lab in question.

Grading:

There will be three classroom examinations and a comprehensive final exam. There will be no make-up examinations. If you know in advance that you must be absent when an exam is given, please inform us in advance. If you cannot attend an exam due to illness or some unexpected circumstance on the day of the exam, you should call and (or leave a message) as soon as possible. The final grades in this course are based on a curve. Letter grades are assigned depending on your overall ranking in the class. Letter grades of +/- are assigned to borderline cases. You should also be aware that the largest point distribution generally occurs on the examinations, provided you attend and complete your laboratory and workshop classes.

Approximate distribution of points:	Total	
Three classroom examinations	375	
Comprehensive final examination	150	
Quizzes	100	(best 10 quizzes taken during the workshop)
Workshop	50	(based on attendance)
Laboratory	200	
Alex	125	
Max points possible-	1000	

Tentative Lecture Schedule Winter/ Spring 13

Date	Lecture Subjects
Jan 22; Jan 24	Ch. 1 Chemistry: Matter and Measurement
Jan 29; Jan 31; Feb 5	Ch. 2 Atoms, Molecules, Ions
Feb 7; Feb 12, Feb 14	Ch. 3 Mass Relationships in Chemical Reactions
Feb 19; Feb 26	Ch. 4 Reactions in Aqueous Solution
Feb 21	Exam 1 (Chap 1-3)
Feb 28; Mar 5; Mar 7	Ch. 5 Periodicity and the Atomic Structure of Atoms
Mar 12; Mar 14	Ch. 6 Ionic Bonds and Some Main-Group Chemistry
Mar 19; Apr 2, Apr 4	Ch. 7 Covalent Bonds and Molecular Structure
Mar 21	Exam 2 (Chap 4-6)
Spring Break Mar 23-Mar 31	

Apr 9; Apr 11	Ch. 8 Thermochemistry: Chemical Energy
Apr 16; Apr 18	Ch. 9 Gases: Their Properties and Behavior
Apr 23; Apr 30; May 2	Ch. 10 Liquids, Solids, and Phase Changes
Apr 25	Exam 3 (Chap 7-9)
May 7; May 9	Ch. 11 Solutions and Their Properties
Final Exam	Thursday May 16; 7:45-9:45 AM

General Chemistry 1111 Lab Schedule Winter/Spring Semester 2013

Instructor: Staff TA's

Lab Coordinator: Paul Gontarz

Office:

Phone: 314-516-5773

Schedule of Labs

Week	Date	Experiment
1	1/22&1/24	No Lab
2	1/29&1/31	Introduction, safety video, check in
3	2/5&2/7	Measurement of Mass and Volume
4	2/12&2/14	Decomposition of Baking Soda
5	2/19&2/21	Mendeleev for a Day
6	2/26&2/28	Micro Voltaic Cells
7	3/5&3/7	Nine Bottle Experiment
8	3/12&3/14	Conductance of Solutions
9	3/19&3/21	Alum synthesis
10	3/23-3/31	No Lab - Spring Break
11	4/2&4/4	Water Hardness Experiment
12	4/9&4/11	Forensic Chemistry of Inks
13	4/16&4/18	Charles' Law
14	4/23&4/25	Indirect Determination of Temperature
15	4/30&5/2	Soda Can Challenge
16	5/7&5/9	Check out

Laboratories

The laboratories are an important portion of the Chem. 1111 experience. The labs are an integral part of an experimental science, and not solely designed to help you pass the exams. The purpose of the labs is to try and help you develop thinking skills as they relate to chemistry, and occasionally illustrate a concept that relates to lecture. You will be asked to apply both your

critical thinking skills, outside experience, and knowledge from lecture and discussion to solve the problem associated with the experiments. Each is designed to be completed in one class period, and each lab is due at the end of the lab period, unless you receive permission from your teaching assistant to turn it in at a later date. You may not stay late to complete a lab.

All of the labs will be available online on MyGateway. Before the lab begins you should have printed a copy of the lab and have read through it at least once. For most laboratories you will be working with a partner. When working with a partner we ask that you share responsibilities and work load. Do not have one person writing down observations while the other does all the work. While you should share data, each of you should turn in your own lab report. For a group of two people there will be two lab reports turned in. While we encourage you to work together and share information, the lab report you turn in must be your own work, with descriptions and answers written in your own words (basically this means no copying).

At the beginning of each lab the teaching assistant and/or laboratory coordinator will give a brief description of the experiment and discuss any safety concerns. You will be given a brief idea of how the lab will be graded (point distribution) but this may be modified based on the nature of the experiment.

If you miss a laboratory you will not receive credit for that experiment. There are no make-up labs. We do not have the space and ability to allow you to make up an experiment. Excused absences are limited to the following situations:

1. If you are part of a university scheduled event and prior to the absence you provide a note from the organization stating you will be gone during the lab period.
2. If you are sick and provide a note from a doctor/nurse/health center. (If you do not have a note we cannot excuse your absence.)
3. Jury duty or court dates, with written note.

If you receive an excused absence, all of your lab grades for the semester will be averaged together and that score will be assigned for the lab you missed.

There are 13 labs, but we will only count the grades for 12. This lowest score could be from a lab you did poorly on or from a week you missed. In case of inclement weather, the number of laboratories grades counted may be reduced.

Laboratory Safety

The Department of Chemistry & Biochemistry takes lab safety very seriously. Some of the more important safety regulations are summarized below. Serious safety violations will result in expulsion from the lab for the day and a grade of zero for the corresponding lab report.

1. Eye protection must be worn **at all times** and should include side-shields. Goggles are also recommended for students who normally wear eyeglasses. Sunglasses are not acceptable.

Appropriate safety glasses and goggles can be purchased at the bookstore. Students without eye protection will **not be allowed into lab**, and any student who consistently removes his/her eye protection will be dismissed from lab and will not receive credit for the laboratory.

2. Smoking, eating, or drinking in the lab is prohibited. Food (including packaged food and bottled water) should not be brought into the lab. If a food item is seen, you will be asked to remove it from the lab immediately.
3. Small chemical spills should be cleaned up immediately. Larger spills should be reported to the TA. Special care should be taken when weighing chemicals.
4. Proper attire is an important part of lab safety. You should attempt to cover as much of your body as possible, preferably with a shirt with sleeves and pants that extend past the knee. During periods of warm weather, be sure to bring an old shirt/and or pants that you can wear during lab. Short skirts and shorts that end above the knee are discouraged. Shoes should be worn that cover the entire foot. High heels are also discouraged. **If you are not wearing appropriate attire for lab you may be asked to leave.**
5. Before each lab you will be given specific instructions regarding the proper disposal of chemicals. Almost all chemicals, especially heavy metals, organic solvents, and oxidizing agents, must be collected in marked containers for proper disposal. Never put any chemicals down the sink without asking the person in charge. In some labs we will be segregating the chemicals wastes into different containers, e.g. heavy metals in one container and aqueous buffers in another. It is very important that you pay attention to the container labels and put the waste into the proper container.
6. Chemicals or equipment are to not to be removed from the lab.
7. You are not allowed in the laboratory unless a supervisor is present.

Lab Check in and Check out

During check in you will be assigned a lab drawer and you will be asked to verify its contents. You are responsible for returning all your original equipment at the end of the semester. You will be charged for lost or broken items when you check out at the end of the semester.

It creates a lot of work for the Chemistry stockroom staff if you fail to check out of your lab drawer. Therefore, the department imposes a **\$50 late checkout** fee for anyone who does not formally check out of their lab drawer by the last day of lab. If you drop the course, you should check out immediately.