

# Chemistry 1 (Section DD) Course Syllabus for FS 2011

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**OFFICE HOURS:** Tue-Thur 9:00-10:00 am (or by appointment)

**LECTURES:** MWF 11-11:50 am..... G-3 Schrenk Hall..... (no lectures on 9/5, 11/21, 11/23, and 11/25)

**RECITATIONS:** 305, 139 Schrenk Hall ..... (no recitations on 11/22 and 11/24)

**SECTIONS:** D1: Tu 8-8:50 D2: Tu 9-9:50 D3: Tu 10-10:50 D4: Tu 11-11:50  
(Circle yours) D5: Th 8-8:50 D6: Th 9-9:50 D7: Th 10-10:50 D8: Th 11-11:50

**RECITATION QUIZZES:** ..... D1-D4 Tu 3:30-7:30 pm ..... D5-D8 Th 3:30-7:30 pm ..... G-34 Schrenk Hall

**TAs** Sections D1, D2, D5, D6: PRACHI SOOD ([ps3m8@mail.mst.edu](mailto:ps3m8@mail.mst.edu)) 224 Schrenk Hall (573) 341-4924  
Sections D3, D4, D7, D8: CHAKRI C. ([ccxk4@mail.mst.edu](mailto:ccxk4@mail.mst.edu)) 227 Schrenk Hall (573) 341-4033  
Technical Support: PERIS CARR ([peris@mst.edu](mailto:peris@mst.edu)) 224 Schrenk Hall (573) 341-6176

**LEAD (Learning Enhancement Across Disciplines)** <http://lead.mst.edu/> (starting 8/25, no LEAD on 9/5, 11/21, 11/23, and 11/24)

**LEAD CENTERS:** ..... 139/126 Schrenk Hall, M 5-7 pm (Mrs. Satterfield), M 7-9 pm (Dr. Bone),  
W 7-9 pm (Dr. Collier)  
Th 3-5 pm (Mr. McDowell) only room 139 Schrenk Hall

**WALK-IN LEAD TUTORING:** ..... 208 Norwood Hall, TuTh 7-9 pm

**LEAD Centers** and **LEAD Tutoring** are unique, collaborative learning environments for students who wish to improve their conceptual understanding and mastery of the course material. Centers and Tutoring will have outstanding students (PLAs = Peer Learning Assistants) to guide you. During LEAD Centers, a course instructor will also be there to help.

**Chemistry LEAD** is an excellent opportunity to get a good understanding of chemical principles and concepts, prepare for homework assignments, and get in contact with your peers. It is certainly **better than paying someone for tutoring**.

To encourage your participation, **1 point of extra credit** will be offered for each attendance. You will earn this point if you **actively participate in a LEAD Center** for at least 30 minutes **and**, before you leave, **write a one-minute paper** on "What I learned today in LEAD" (one paper limit per session). Attendance will be recorded by swiping your student ID card at the card reader in 139 Schrenk Hall. It is important that you swipe when you enter and when you leave. You will not earn the point of extra credit without properly **"swiping in" and "swiping out"**.

## Course Information & Discussion Board

For information related to this course (e.g., announcements, course material, reading assignments, current grades) visit <http://blackboard.mst.edu/>, Course ID: CHEM 001: GENERAL CHEMISTRY (LEC 1DD) FS2011

***It is very important that you visit Blackboard regularly!***

A course discussion board is available through Blackboard (<http://blackboard.mst.edu/>) for you to converse with your peers, TAs, and instructors, and to comment on matters related to this course. Discussion threads will be initiated for every homework problem and for topics you or your peers suggest.

📢 ***Please participate regularly in this additional way of communicating and learning!***

## Required Material

**TEXTBOOK:** Nivaldo J. Tro, **Chemistry: A Molecular Approach** 2<sup>nd</sup> Edition  
packaged with *MasteringChemistry* online-homework subscription (student edition) ISBN 0-3217-0615-3  
\_\_\_\_\_ Textbook and *MasteringChemistry* subscription may also be acquired separately \_\_\_\_\_

**CALCULATOR:** **Scientific notation required!** Equation-solving or graphing calculators, cell phones, phones with PC-like functionality (smartphones), personal data assistants (PDAs), or laptops are not permitted as calculators.

**CLICKER:** **TurningPoint ResponseCard® XR with LCD display** from *TurningTechnologies* (so-called **XR Clicker**; see <http://www.turningtechnologies.com/interactiveaudienceresponseproducts/responsecards/responsecardxr.cfm> for more information). **Do not buy ResponseCard® RF or ResponseCard® IR** (without the LCD display). *XR Clickers* required for this class can be used for all Missouri S&T courses for which clickers are required.

📢 ***You must register your clicker through Blackboard*** (<http://blackboard.mst.edu/>)

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## LEARNING ASSESSMENT AND GRADE EVALUATION

### HOMEWORK:

After each lecture, a new *homework assignment* will be posted online at [www.masteringchemistry.com](http://www.masteringchemistry.com). Each assignment will consist of skill-building practice problems and for-credit problems that are similar to the end-of-chapter problems in the textbook.

- 🔦 **Homework assignments must be completed online.** For MasteringChemistry sign-up instructions and the homework grading policy, visit Blackboard (<http://blackboard.mst.edu/> ⇒ Course Information).

You will be given 3 days to enter your solutions online with a sharp electronic deadline at precisely 11:00 pm on the 3<sup>rd</sup> day after the lecture. You will receive immediate feedback on your solutions, and your work will be graded automatically. Each completed assignment is worth 6 points (up to a maximum of 200 points counted toward your final grade points).

### RECITATION QUIZZES:

In the afternoon of your recitation session, you will conduct an online quiz (20-minute limit from the time you start the quiz) in G-34 Schrenk Hall. To conduct your quiz, you can pick any time between 3:30 pm and 7:30 pm but you may have to wait if all 40 computers are occupied. Recitation quizzes (worth 20 points each) will be over topics discussed at the recitation session earlier that day. Only your 10 highest quiz scores (out of 14 quizzes during the semester) will be counted toward your final grade points.

- 🔦 *You will only be allowed to conduct the quiz after swiping your student ID card at the card reader in room G-34 Schrenk Hall and depositing it with the proctoring TA. Remember: **You must bring your student ID card!***

### “CLICKER” QUESTIONS:

With your clicker, you will interactively *respond to questions posted during the lecture*. Correct answers are worth 1 point each (up to a maximum of 150 points counted toward your final grade points). Your responses will be recorded and evaluated, but also used to check for attendance. Typically, the first question will be posted within the first minute of class covering assigned textbook reading. If you don't want to miss these “easy” points, **don't forget your clicker** and **don't be late for class!**

### READING QUIZZES:

To prepare for the upcoming lecture you will find a new *textbook reading assignment* on Blackboard after each lecture. You are expected to prepare for class by reading the assigned sections and take written notes. A 3-minute reading quiz will be posted online at [www.masteringchemistry.com](http://www.masteringchemistry.com) after each lecture and must be completed by 8 am on the day of the following lecture. Reading quizzes are worth 1.5 points each (up to a maximum of 50 points counted toward you final grade points).

### EXAMINATIONS:

A *Nomenclature Exam* (worth 100 points) and three *Hourly Exams* (worth 100 points each) will be held during the regular lecture time (11-11:50 am) in the usual lecture room (G-3 Schrenk Hall). These examinations will be over material covered since the last exam with problems similar to those from the homework assignments.

### FINAL EXAM:

The *two-hour Final Exam* is comprehensive over all course material and is worth 200 points.

### GRADE ASSESSMENT:

Your current grade will be posted (visible only to you) on Blackboard and updated weekly. Final grades will be assigned on 90%, 80%, 70%, 60% of 1200 points for A, B, C, D letter grades, respectively. If you earn less than 60% you will fail the class (F letter grade). **Do not expect grades or exams to be curved!** Students who earn at least 950 points (95%) before the final exam will receive a final grade of A without taking the final exam.

#### **Grade Evaluation Summary:**

Source:	Course credit per assignment:	Out of 1200 points:	%
Nomenclature Exam	100 points	100	(10 %)
Hourly Exams	100 points each (× 3 exams)	300	(30 %)
Online Homework Assignments	6 points each (× 37 assignments)	200 (max)	(20 %)
Recitation Quizzes	20 points each (× 10 best out of 14)	200	(20 %)
“Clicker” Questions	1 point each (about 180 attempts)	150 (max)	(15 %)
Reading Quizzes	1.5 points each (× 37 assignments)	50 (max)	(5 %)
Final Exam	200 points	200	(20 %)

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## LECTURE SCHEDULE:

<u>DATE</u>	<u>CONTENT</u>
8/22	<b>Introduction and Orientation</b> (1 lecture)
8/24	<b>Chapter 1</b> <b>Matter, Measurement, and Problem Solving</b> (1 lecture, 1 recitation) Topics: Matter, units, measurement, density, significant digits
8/24-26	<b>Chapter 2</b> <b>Atoms and Elements</b> (1 lecture, 1 recitation) Topics: Atomic structure, isotopes, ions, isoelectronic ions, moles, mass to moles
8/26-9/7	<b>Chapter 3</b> <b>Molecules, Compounds, and Chemical Equations</b> (5 lectures, 2 recitations) Topics: Bonding, chemical formulae, elements vs. compounds, ionic vs. covalent, nomenclature, chemical equations & balancing
9/9	<b>NOMENCLATURE EXAM</b>
9/12-9/28	<b>Chapter 4</b> <b>Chemical Quantities and Aqueous Reactions</b> (8 lectures, 3 recitations) Topics: Mass-to mass conversions, limiting reagent, yields, concentration, molarity, ionic equation, spectator ion, precipitation, acid-base reactions, neutralization, titration, oxidation states, balancing oxidation-reduction reaction
9/30	<b>1<sup>ST</sup> HOURLY EXAM</b> (Chapters 1-4)
10/3-10/7	<b>Chapter 5</b> <b>Gases</b> (3 lectures, 1 recitation) Topics: Fundamental gas laws, ideal gases, partial pressure, gas stoichiometry, diffusion and effusion, real gases
10/10-10/12	<b>Chapter 6</b> <b>Thermochemistry</b> (2 lectures, 1 recitation) Topics: Heat, work, reaction enthalpy, enthalpy of formation, heat capacity, calorimetry
10/14-10/19	<b>Chapter 7</b> <b>The Quantum Mechanical Model of the Atom</b> (3 lecture, 1 recitation) Topics: Electromagnetic radiation, atomic spectra, wave-particle duality, electron energy levels, wave functions, quantum numbers, uncertainty principle, orbital shapes
10/21	<b>2<sup>ND</sup> HOURLY EXAM</b> (Chapters 5-7)
10/24-10/28	<b>Chapter 8</b> <b>Periodic Properties of the Elements</b> (3 lectures, 1 recitation) Topics: Building-up principle, valid quantum configurations, periodic table, atomic radius, ionization energy, electron affinity, electronegativity
10/31-11/7	<b>Chapter 9</b> <b>Chemical Bonding I: Lewis Theory</b> (4 lectures, 2 recitations) Topics: Chemical bond types and properties, lattice energy, Lewis structure, resonance, formal charge, octet exceptions
11/9-11/14	<b>Chapter 10</b> <b>Chemical Bonding II: Shapes, Valence Bond and MO Theory</b> (3 lectures, 2 recitations) Topics: Electron repulsion (VSEPR), molecular shape, sigma and pi bonds, hybridization, molecular vs. bond polarity
11/18	<b>3<sup>RD</sup> HOURLY EXAM</b> (Chapters 8-10)
11/16-11/30	<b>Chapter 11</b> <b>Liquids, Solids, Intermolecular Forces</b> (3 lectures, 1 recitation) Topics: Intermolecular forces, viscosity, vapor pressure, phase diagram, crystalline vs. amorphous, unit cell, packing, crystallography
12/2-12-5	<b>Chapter 12</b> <b>Solutions</b> (2 lectures, 2 recitations) Topics: Heat of solution, solubility, colligative properties, units, mole fraction
12/7-12/9	<b>Review, Evaluation</b> (2 lectures) Topics: Deepen the understanding of chemical concepts and principles
12/15	<b>FINAL EXAM</b> (8:00 – 10:00 am) <b>LOCATION TBA</b>

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## **ATTENDANCE POLICY:**

Students are required to attend *all lectures and recitations*. Your Instructor or TA may cover relevant material or examples that are not in the textbook. In the case of an excused absence (circumstances beyond the student's control, such as Missouri S&T-sponsored activities, illness, funeral of a relative or close friend, military duty, court appearance, or personal emergencies), students may be permitted to make up graded work. Clicker questions and reading quizzes are excluded from any make-up policy.

**Students with several unexcused absences from lectures or recitations, unsatisfactory performance, or missed assignments will be subject to receiving Academic Alerts (see below).**

## **ACADEMIC ALERTS:** (<http://academicalert.mst.edu>)

An academic alert will be issued if you repeatedly fail to attend lectures or recitations. Alerts will also be issued for insufficient performance such as missing assignments or receiving unsatisfactory grades. The purpose of alerts is to improve the academic success by *enhancing communication* between student, instructor, and advisor, and informing the student of *necessary actions* to meet the requirements in the course. *It is essential that you promptly respond to academic alerts!*

## **DISABILITY SUPPORT:** (<http://dss.mst.edu>)

If you have a documented disability and anticipate needing special accommodations in this course, you should meet with the instructor early in the semester. You will need to request that the Disability Services staff provide a letter to the instructor verifying your disability and specifying accommodations you may need. Only then, accommodations can be arranged.

## **CLASSROOM EGRESS PROCEDURE:**

To quickly and safely evacuate the classroom in case of an emergency you are asked to familiarize yourself with the classroom egress maps posted on-line at <http://registrar.mst.edu/links/egress.html>.

## **STUDENT STANDARD OF CONDUCT:**

### **Student Academic Regulations B.:**

([http://registrar.mst.edu/documents/academic\\_reg2008-2010.pdf](http://registrar.mst.edu/documents/academic_reg2008-2010.pdf), p.30)

1. "(...) The Board of Curators recognizes that academic honesty is essential for the intellectual life of the University. Faculty members have a special obligation to expect high standards of academic honesty in all student work. Students have a special obligation to adhere to such standards. In all cases of academic dishonesty, the instructor shall make an academic judgment about the student's grade on that work and in that course. The instructor shall report the alleged academic dishonesty to the Primary Administrative Officer.

- a. The term **cheating** includes but is not limited to:
  - i use of any unauthorized assistance in taking quizzes, tests, or examinations
  - ii dependence upon the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments.
  - iii acquisition or possession without permission of tests or other academic material belonging to a member of the University faculty or staff
  - iv knowingly providing any unauthorized assistance to another student on quizzes, tests, or examinations.
- b. The term **plagiarism** includes, but is not limited to:
  - (i) use by paraphrase or direct quotation of the published or unpublished work of another person without fully and properly crediting the author with footnotes, citations or bibliographical reference;
  - (ii) unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials; or
  - (iii) unacknowledged use of original work/material that has been produced through collaboration with others without release in writing from collaborators.

### **Clickers:**

Clickers must be used as registered by, or assigned to, a student. Any use of clickers other than specified by the instructor as the intended use may be considered an act of academic dishonesty. This includes, but is not limited to, using a clicker that is not registered in your name.

### **Calculators:**

During examinations, calculators may only be used to assist in conducting numeric calculations. Any use of calculators other than conducting numeric calculations may be considered an act of academic dishonesty. This includes, but is not limited to, using the calculator's memory to store formulae or other information that might be related to the topic of general chemistry.