General Chemistry

CH 221

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Office Hours: M 12-1 W 9-10 R 11-12

Announcements

- Lab CH 227 - concurrent enrollment
- Labs meet this week - you must attend
- Pre-requisite: high school chemistry or an equivalent preparatory course
- And Completion of or concurrent enrollment in Mth 111 or high school algebra and trig

World Problems?

Chemistry's Role

- Each of the problems above will require the input of chemists or chemical knowledge to overcome or manage.
- Knowledge of basic principles
- Good problem solving skills
- Motivation to address increasingly complex issues

Climate Issues

The so called "greenhouse gases", such as, carbon dioxide and methane have a negative impact on the earth's climate.

A. True
B. False
C. What do you mean by negative impact?
D. I'm not sure

Greenhouse Simulation

http://phet.colorado.edu/simulations/sims.php?sim=The_Greenhouse_Effect

- No green house gases - temp?
- 1700's - temp?
- Increasing green house gases - temp?

Hunger?

1898: Sir William Crooke - “England and all civilized nations, stand in deadly peril.”

- Predicting massive famine due to the loss of fertility of the soil growing crops; primarily wheat.
- Population is increasing - needs increase

Plants need: nitrogen, potassium, phosphorous

Why chemistry? Is nitrogen scarce?

- Science of materials around us
- Describing material and its changes
- Modeling systems - substances
- Quantitative: measuring, calculating

Advanced through:

- EXPERIMENT AND EXPLANATION

Course Objectives - Goals

- know basic terminology
- recognize and name compounds
- quantitative chemical reaction problems
- know structure of atoms, molecules and compounds

Course Objectives

- be familiar with periodic table
- recognize periodic trends
- know basic bonding models
- correlate molecular structure with physical and chemical properties

How to find stuff on web

Go to course home page:
web.pdx.edu/~shusteg

Click on: Blackboard

Follow log on instructions: there is a direct link to instructions and Technical tips here.

On MyBlackboard page: select CH 221 Shusterman

Course Resources and Materials

CH 221 Home Page - Blackboard

- Course Syllabus
- Course Calendar: deadlines / announcements
- Lecture Notes
- Pre-Assessment Activity - available now
- Discussion Board - student use
- Course specific email addresses
  - To contact me please use: shustermang@pdx.edu

Structure of Text

Meant to be worked through not just read

- Read “A Student’s Guide to Using This Text” in the preface
- Molecular Art: lab view - molecular view - symbolic view
- Problem solving strategies - column approach
- Conceptual connection questions
- Tro Textbook p. 31

In class we will be doing

Group - in class problems

- Promote student interactions
- Thinking time in lecture (challenges)

ConcepTest questions

- Provide feedback to lecturer
- Check on understanding of concepts

Out of Class -structured activities

Lab Sessions

- Hands on with concepts and experimentation
- “Safe” environment to learn and try
- Illustrations of concepts learned in lecture
- Learn to work with experimental data
- Learn how to communicate scientific findings

Chemistry Workshops: CH 284

- Led by peer mentors
- Meet once a week for two hours
- Work challenging problems related to lecture material - provided by me
- Enrollment limited and voluntary
- Attendance mandatory (85%)
- Credit: 1 unit -> P/NP
- Shows grade improvement in lecture

Course Participation - ~15%

Participation points may be earned by:

1. In-class group exercises (everyone)
2. Blackboard activities (everyone)
3. Enroll in chem workshop (choice) or
4. Mastering Chemistry exercises (choice)

Participation - credit for effort

1. Problem solve in groups: (turn in work - names)
2. Complete activities - 2 quizzes, 1 tutorial (submission automatic)
3. Pass CH 284 (records from leader) or
4. Mastering Chemistry - complete "Chapter Participation Problems" - see syllabus for instructions and course code (earn 75%, deadlines on Blackboard calendar) access code packaged with text if bought separately then need to purchase eBook.

Keys for Success

Participate:

- attend class regularly
- read the text chapter and lecture notes before the corresponding class meeting
- take an active part in the in-class activities
- you must solve problems
  - work through all the assigned homework

More Tips:

- read the book – problem assignments come from chapter currently covering – read it all unless told otherwise
- book makes connections not always talked about in class
- problem assignments require a deeper understanding of material than just following lectures

Keys to Success

You must solve problems

- try additional textbook problems
  - Mastering Chemistry: "Practice for Chapter"
- see TA in help room, SB1 221
- Come to office hours

Suggested Homework problems:

Chap. 1: 37,41,45,50,51,59,61,63,67, 71,81,85,93,105,107,113,115

For next time

Blackboard: do General Chemistry Pre-Test (participation points)

Reading: Chapter 1 (start problems)

Participation: Begin mastering chemistry chapter 1 (participation points)

Or: Meet CH 284 (workshop class)

Go to LAB

Struggling?

CH 199 Foundations of General Chemistry - a drop back course

- Meets same time, starting week 4 of the term.
- Successful completion - move on to CH 222
- Complete CH 221 later term (summer?)
- Must have instructor approval

Question: How do iron and silver differ?

How can I tell them apart?

- Ideas?

What experiment might I run?

They behave differently when exposed to air and water !!!

This is example of a Chemical Property