

# Summer 2010 Chemistry 222 with Dr. Michael A. Russell

Mt. Hood Community College, Gresham, Oregon, USA 97030

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Office Hours: By Appointment only 7 - 8 PM MTWTh Office: 2568

Chemistry 222 Website: <http://mhchem.org/222>

## Required Materials:

Chemistry *The Central Science* (11<sup>th</sup> Edition) by Brown *et al.*, ISBN 0-135-031-486

*The Chemistry 222 Companion (Lab Manual, Problem Sets, etc.)*

Graphing calculator (such as the TI-83, TI-89, etc.)

Bound Laboratory Notebook

Scantron Sheets for exams (50 Questions on **each** side)

Safety goggles for lab

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**Course Description:** This course offers the fundamental basis of chemistry for science, pre-professional, chemistry and engineering majors. A strong emphasis is placed on a mathematical approach. This second term covers molecular bonding and molecular properties, gases, liquids, solids, physical states and changes of state, solutions, kinetics, and nuclear chemistry.

**Prerequisites:** A C or better in CH 221.

**Course Philosophy:** To be successful, students enrolled in a 200 level chemistry course should complete all assignments before coming to class, attend classes regularly, participate in discussions, and think critically to discover the fundamental theories inherent to this course. All homework assignments represent the *minimum* requirement for understanding the principles of chemistry. It is assumed that A and B students will perform enough *unassigned* exercises to master the concepts.

**The Honor Principle:** All students will be expected to behave with the highest moral and academic integrity while enrolled in this class. Plagiarism, cheating or sharing information on tests or laboratory reports, disruptive behavior, and other related offenses will be dealt with according to the directives stated in the current *Mt. Hood Community College Student Guide*.

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<b>Grading:</b>	Midterm Exams (2 total, 130 points each)	260 points
	Quizzes (6 total, lowest quiz dropped, 20 points each)	100 points
	Lecture Final Exam	180 points
	Laboratory Final Exam	100 points
	Class Presentation	100 points
	Problem sets (6 total, 10 points each)	60 points
	Nine lab experiments (20 points each)	180 points
	Lab Completion Bonus and Notebook	20 points
	<b>Total points:</b>	<b>1000 points</b>

**Tentative grading distribution:**      A: 90-100%      B: 80-89%      C: 65-79%      D: 55-64%      F: less than 55%  
Opportunities for extra credit are available and explained in the "Extra-Credit Guide" handout.

**Exams and Quizzes** will be held in the recitation portion of lab. No make-up quizzes will be given. If you need to miss an exam due to illness or personal emergency, call and leave a message to assure a make-up exam. Failure to call results in a failed exam. Note that **cell phones are not allowed as a calculator substitute**, and using a cell phone results in an immediate grade of zero.

Each student will give a **Class Presentation** this term. For more information, see the handout entitled "Class Presentations FAQ".

**Laboratory Safety and Etiquette** rules can be found in the lab packet for this course and on the website. Information regarding **lab reports**, the mandatory **lab notebook**, the **lab completion bonus** and **missed lab sessions** can be found in the lab packet and on the course website as well. Lab reports will never be accepted electronically (email, etc.); only hard copies will receive credit.

**Problem Sets:** We will be using problem sets found in the CH 222 Companion, available at the bookstore. All problems should be attempted prior to class (we will be discussing them during recitation), and arriving late to a problem set session will invoke a point penalty. Late problem sets will also receive a point penalty. Details regarding problem set grading will be discussed during the first recitation of the term.

Note that sessions may be recorded to maximize the learning resources available to the student population. See the "College Information" guide on our website (found under "Class Information") for more detail.

## "What's Due This Week" Schedule for CH 222 Summer 2010

*Problem Sets and Labs are found in the Chemistry 222 Companion and on our website (<http://mhchem.org/222>)*

<u>Week</u>	<u>Date</u>	<u>Assignment</u>
1	6/21	Introduction to the course, Lecture (Chapter 8)
	6/22	Begin "The Geometrical Structure of Covalent Molecules" Lab
	6/23	Lecture (Chapter 8 and Chapter 9) Lab Due: "The Geometrical Structure of Covalent Molecules" (Lab #2)
	6/24	Due: <u>Problem set #1</u> Chapter 8 and Chapter 9 (9.1 - 9.3) Take <u>Quiz #1</u> Lecture (Chapter 9 and Chapter 25)
2	6/28	Due: <u>Problem set #2</u> Chapter 9 Take <u>Quiz #2</u> Begin "Valence Bond and Molecular Orbitals Lab" Lab
	6/29	Lecture (Chapter 25) Begin "Linear Regression" Lab Lab Due: "Valence Bond and Molecular Orbitals Lab" (Lab #3)
	6/30	Due: <u>Problem set #3</u> Chapter 25 Take <u>Quiz #3</u> Begin "Organic Chemistry" Lab Lab due: "Linear Regression" (Lab #1)
	7/1	<b>EXAM #1</b> - Chapters 8, 9 & 25 Lab Due: "Organic Chemistry" (Lab #4) Lecture (Chapter 10) Last chance to reserve a Class Presentation compound
	7/5	No school - 4th of July Holiday! ☺
3	7/6	Lecture (Chapter 10 and Chapter 11)
	7/7	Due: <u>Problem set #4</u> Chapter 10 and Chapter 11 (11.1 - 11.4) Take <u>Quiz #4</u> Begin "Molar Mass Determination of a Volatile Liquid" Lab - <b>goggles</b> required
	7/8	Lecture (Chapter 11 and Chapter 13) Lab due: "Molar Mass Determination of a Volatile Liquid" (Lab #5)
4	7/12	Due: <u>Problem set #5</u> Chapter 11 and Chapter 13 Take <u>Quiz #5</u> Begin "Solids" Lab
	7/13	Lecture (Chapter 14) Begin "Molar Mass Determination by Freezing Point Depression" Lab Lab due: "Solids" (Lab #6)
	7/14	<b>EXAM #2</b> - Chapters 10, 11 & 13 Begin "The Iodination of Acetone (Part I)" Lab Due: Peer-reviewed Class Presentation Rough Draft Paper Lab Due: "Molar Mass Determination by Freezing Point Depression" (Lab #7)
	7/15	Lecture (Chapter 14 and Chapter 21) Begin "The Iodination of Acetone (Part II)" Lab
	7/19	<b>CLASS PRESENTATIONS</b> - Final paper due at presentation Lab due: "The Iodination of Acetone (Part I)" (Lab #8) Lab due: "The Iodination of Acetone (Part II)" (Lab #9)
5	7/20	Due: <u>Problem set #6</u> Chapter 14 and Chapter 21 Take <u>Quiz #6</u> Lecture catch-up / Review
	7/21	<b>LECTURE FINAL</b> - Take Home Final due
	7/22	<b>LAB FINAL</b> - Lab Notebook due - <b>goggles</b> required

## Getting Started in Chemistry 222

**Welcome to Chemistry 222!** I am glad to have you enrolled in CH 222 this term. This document will offer hints on how to get started in the class:

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- First, **know that I am here to help you succeed in this class.** If you have any questions, please email me (mike.russell@mhcc.edu), give me a call (503.491.7348) or stop by my office (AC 2568) during office hours. I normally respond to student inquiries within 24 hours on email, and I return calls the next time I am in my office.
- All relevant assignments (problem sets, papers, etc.) as well as assessments (quizzes, exams, etc.) will occur during recitation (the beginning of your lab period.) If this is a **hybrid** or **web-based (H1)** class, we will only meet "face to face" during the lab period. All other students will meet "face to face" during both the lab period and during the lecture periods.
- The "**What's Due This Week**" **Schedule for CH 222** located on page 2 of your syllabus **lists all the problem set due dates, assignment deadlines, labs performed, exam/quiz dates, and related information for this term.** You can plan your term by referencing this handout.
- Next, **join the marchem mailing list** if you are not already a member. **marchem** is a mailing list for students in CH 222, CH 222 and CH 223 at Mt. Hood Community College. Over the course of the year, you will receive various pieces of information, events, announcements, and more via marchem.

To join marchem, send your Web browser to the following address:

**<http://mhchem.org/marchem>**

and select **Join marchem** by clicking the button with your mouse. Next, enter your **email address** in the appropriate place and leave all the other options blank. Press the **Save** button at the bottom; you should now be a part of marchem.

- Now it is time to **explore the Chemistry 222 website.** The Chemistry 222 website has a host of learning opportunities waiting for you. You can download and/or print copies of the syllabus, PowerPoint notes, labs, quiz answers, and more; plus there are opportunities for extra credit available on the website.

To get started, send your web browser to

**<http://mhchem.org/222>**

and select "Enter the CH 222 Classroom" with your mouse. You should see the CH 222 website on your screen! If you do not see it, contact the instructor.

- Once you are in the Chemistry 222 website, check out the **Chemistry 222 Chapter Guides** by selecting "Chapter Guides" from the upper left hand corner of the screen. The Chapter Guides offer a detailed approach for studying the course material through a series of lessons. **Read Lesson Zero**, the "**Intro to the Chapter Guides System**" to understand how the chapter guides work.
- Now would be a great time to start thinking about a **Class Presentation Topic.** You will be giving a five minute presentation this term on an **element**, and you must reserve your element choice with me. A written paper also accompanies the presentation on your element. To reserve your element, send your web browser here:

**<http://mhchem.org/cp222>**

See the "**Class Presentations FAQ**" handout (available in the syllabus or here: **<http://mhchem.org/cp222info>**) for more information; this document can also be found on the CH 222 website under "Class Information."

- Finally, you should **join the Discus Chemistry Board** to start participating in the discussions for Chemistry 222. Instructions on how to join Discus are provided in the **Joining Online Discussions with Discus** guide that accompanies this handout, or you can find it online at **<http://mhchem.org/discus>**

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Again, welcome to Chemistry 222! Let me know if I can make your learning experience better in any way, and I look forward to working with you this term!

Dr. Michael Russell (mike.russell@mhcc.edu, 503.491.7348, AC 2568)

# CLASS PRESENTATIONS FAQ

FAQ = Frequently Asked Questions

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**When:** July 19 (Monday)

**What:** A chance to share knowledge with your classmates and the MHCC community

**Who:** *Everyone enrolled in CH 222 (All Sections)*

**What topic should I pick?** For CH 222, the topic will be **compounds**. Pick a compound you find interesting and write a report on it.

Since there are millions of compounds, every student must pick a different compound. **Reserve** your compound using the online form at <http://mhchem.org/cp222>

Once your compound has been chosen, begin researching interesting information on the compound using the library, internet, etc. You will be preparing a paper on the compound and presenting your work to the class in a short (five minute) presentation.

If you need to change your class presentation topic after the second week of class for any reason you will be penalized 20 points; hence, it's best to reserve a compound early and start researching promptly. Also, if you still have not reserved a compound by the end of the third week, you will be penalized 20 points for tardiness.

**What should I know when writing the paper** Prepare a paper that is at least **five full pages** of text on your reserved element. Diagrams, pictures, and other graphics are wonderful, but you will need five full pages of writing for complete credit.

The paper should also include a separate **cover sheet** and a separate page at the end with your **list of references**. The paper must be neat, typed, referenced, and interesting to read; spelling and grammar will count. References made to sections within the paper should use **footnotes** that correspond to references in your list of references. The paper must also use a "reasonable" font and font size; in addition, use 1" margins or less and no more than "one and a half" spaced type (less than double spaced.) If unsure, ask the instructor.

**What is a peer reviewed scientific article?** An important aspect of this assignment is to ensure scientific relevancy. To this end, **find two peer reviewed scientific articles published within the last three years** that include a reference to your element. **Include at least the abstracts of these papers with your final Class Presentation paper.**

**How do I find my two peer reviewed scientific articles?** The easiest way to find some peer reviewed scientific articles is to use the MHCC Library system. Go to **this website** (<http://www.mhcc.edu/Library.aspx?id=1098>) and **select "Academic Search Premier"**. **Login with your last name and MHCC Student ID number**, then conduct a search on your presentation compound. The resulting page should contain more than two references, and by selecting the links, the abstracts will be shown. *Questions?* Contact me or one of the MHCC librarians.

*Plagiarism discovered from any source will result in an overall Class Presentation grade of zero.*

**What is the peer review process??** Once a rough draft of your paper has been written, **get another student from our class to peer review your paper**. The student reviewing your paper should proof read the paper and comment on its quality, completeness, etc. and provide additional ideas for improvement. The peer review student may write on your rough draft directly or they may submit a separate sheet with comments; either approach is fine.

You are responsible for finding your own student peer reviewer. **You will need to turn in the peer-reviewed rough draft of your paper at the time of your second midterm**; make sure the peer reviewer signs his or her name legibly on the rough draft, for submissions without proof of reviewing will not be accepted. You do not need to include copies of your peer-reviewed science articles in your peer-reviewed paper, only the final paper.

Failure to complete the peer review process by the scheduled deadline results in an automatic 20-point penalty.

*What should I know when preparing for the presentation?* You will present a five-minute **presentation** on your chosen subject to the class and anyone who wishes to attend. The presentation must be well prepared and interesting; sloppy preparation shows in the presentation portion. Students can use videos, transparencies, slides, PowerPoint, posters and chalk to enhance their presentation. Make sure you talk to the instructor at least a week ahead of time if you wish to use anything other than PowerPoint or transparencies during your presentation.

PowerPoint users will be limited to a maximum of six slides; more invokes a penalty.

Please note that using your paper (or a *copy* of your paper) during the presentation will result in a ten point penalty. This will prevent you from "reading" your presentation to the audience.

*How will I be graded?* There are 100 points total for this project. 40 points will reflect the work presented in the paper, 40 points will reflect the work done in the presentation and 20 points will be given for completing the peer review process on time.

In addition, failure to turn in the "Class Presentation Reviewer Guide" to the instructor at the end of the day of presentations will result in a ten point penalty. You will be completing the Reviewer Guide while others are giving their presentations. If curious, you can view this guide on our website (<http://mhchem.org/cp222info>).

Late class presentation papers will result in a five point penalty per day.

A sample Class Presentation Grading Rubric is available for viewing on the CH 222 website under "Class Information." The rubric will allow you to look at the items deemed most important when grading your Class Presentation.

Note that your **attendance** is required on the day of presentations, and if you are not present for at least 95% of your normally scheduled lab period, you will lose half of your assigned grade.

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*How do I get started?* Once you decide on a compound that interests you, complete the online Web form to reserve your compound at:

**<http://mhchem.org/cp222>**

You should receive a response from Dr. Russell within 48 hours; if you do not, email him directly at [mike.russell@mhcc.edu](mailto:mike.russell@mhcc.edu). Be sure to include alternate compounds in case your first choice has already been claimed.

Reserve your class presentation compound by **July 1, 2010 at 3 PM**.

Turn in a peer-reviewed rough draft of your class presentation paper at the time of your second midterm exam (**July 14**.)

Finally, turn in your final Class Presentation paper (with copies of at least the abstracts of your two peer-reviewed scientific papers) and give your class presentation (**July 19**.)

Note that you must both present your work and submit your paper to receive any points on this assignment.

If you have any questions, please see this site (<http://mhchem.org/cp222info>) or contact the instructor ([mike.russell@mhcc.edu](mailto:mike.russell@mhcc.edu)).

## Additional Syllabus Materials for Chemistry 222 Available on the Internet

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Some or all of these materials might prove useful to you in our class. All of them are available on the Chemistry 222 website under "Class Information".

**To access these materials** (and more!), go to our website (<http://mhchem.org/222>) and select "**Class Information**" from the upper left corner.

Additional materials include:

- The "**How to Join the Chemistry at MHCC Podcast** guide, which includes step by step instructions for joining the class lecture Podcast for this quarter
- The **Extra-Credit Guide** - a helpful guide containing some of the extra credit options available to you in this course. *Please note:* Due to the time restraints of a summer class, the following extra credit opportunities are not available: webquests, extra credit class presentations, and service learning.
- The **Discuss Guide** - a visual step-by-step guide that helps the new user join the Discuss discussion board with tips on how to post comments, etc.
- **Learning Outcomes for CH 222** - a list of "what you will learn" this quarter
- **MHCC College Information** - key information that you, as a student at Mt. Hood Community College, might wish to know.

In addition, the website has a plethora of other "goodies" which may be of assistance to you throughout this quarter... feel free to browse, and if you have questions, please do not hesitate to contact me.

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Have a great quarter! Peace,

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