

Problems in Chemistry I: CHM 371.001 and 371.002

Fall 2012—Dr. Kevin M. Bucholtz and Dr. Andrew J. Pounds

*This syllabus is for **both** sections of CHM 371. Students will attend both laboratory meetings, regardless of section. Both professors will give input on the final course grade.*

Instructors

Dr. Kevin M. Bucholtz

Office WSC ; tel: 301-5626; e-mail: Bucholtz_KM@mercer.edu

Office Hours M, T, F 1:00 – 2:00 pm WSC 327 **AND BY APPT!**

Dr. Andrew J. Pounds

Office WSC 105; tel: 301-5627; e-mail: Pounds_AJ@mercer.edu

Office Hours Monday 3:00-5:00 pm, Friday 1:00-2:00 pm (WSC 105) **AND BY APPT!**

Course Information

Meeting times: MW 2:00 pm –5:00 pm WSC 314 and computer lab

Prerequisites: CHM 222, CHM 241, MAT 192, PHY 162/162L

Corequisites: CHM 331 and CHM 341

The course objectives include the following:

- Students will integrate concepts and techniques from the major divisions of chemistry, practicing chemistry as a unified science.
- Students will demonstrate proper performance of diverse laboratory techniques, including computational tools.
- Students will gain proficiency in writing formal lab reports according to the guidelines of the American Chemical Society.
- Students will demonstrate effective time management and workload distribution, creative and independent problem solving in the laboratory, and appropriate and complete data analysis.
- Students will demonstrate proper use of physical and mathematical reasoning in the performance of laboratory activities.

Required Materials

- *ACS Style Guide: Effective Communication of Scientific Information*, 3rd edition by A. M. Coghill and L.R. Garson
- Approved safety goggles. This must be worn at ALL times in lab, or else you will be asked to leave. (available from the Bookstore)
- Laboratory notebook with numbered, carbonless pages. You will be turning in the yellow sheets before leaving each lab and using the original sheets to write your lab reports. (available from the Bookstore)

Grading

The following grade ranges are assured:

A	90-100	C+	77-79	F	<60
B+	87-89	C	70-76		
B	80-86	D	60-69		

Anyone earning below 70% on any item should meet with the professors about it ***that week***.

Summary of grade calculation (please see the sections below for more details):

50% Laboratory work

50% Reports

Laboratory Work (50%)

At the end of each lab meeting, the yellow lab sheets will be turned in. **Laboratory sheets will not be accepted after 5:30 pm on the day of lab.** You will not be permitted entry into lab if you are not prepared. Being prepared for lab includes the following:

- being appropriately dressed
- having and always wearing your safety glasses
- showing up on time
- having a plan/goals for the lab period

If you are in violation of any of the above, you may be asked to leave the laboratory, resulting in a zero for that lab period. If a student has an unexcused absence they will receive a grade of a 0. (Also, please see Attendance Policy). The laboratory work grade will be assessed based on the following:

- *15% Lab participation:* Did you contribute positively to your group's experiments? Do you and your group have a clear game plan to work efficiently and safely in lab? Do you maintain a clean workspace? Are you able to efficiently carry out a set of experiments while preparing for the next experiment or evaluating previously collected data? Did you follow safety procedures and maintain a clean workspace? *Your lab participation grade will be calculated from input from both professors, self-evaluations, and peer evaluations.*
- *15% Lab notebook:* Do you maintain a notebook that is legible and organized, so that it can be utilized by other scientists to recreate your work? Are all results included in your notebook, including pasted (or taped) in copies of plotted data and charts? Are full file names included for data files? Have the files been turned over to the professors? *Your lab notebook grade will be determined by both professors based on your yellow sheets and periodic in-lab notebook checks. You will be given more information about how to keep a notebook during class.*
- *10% Oral Practicals:* Periodically you will be given an oral practical over CHM 371 material by Dr. Bucholtz, Dr. Pounds, or both. You will be asked to explain (without notes) various laboratory practices including (but not limited to) calculation strategies, instrumentation (theory, components, and setup), data (significance, interpretation, and manipulation), and chemical software. *These oral practicals may be unannounced.*
- *10% Data Analysis & Additional Practice:* Periodically you will be given additional data, practice problems, or research questions that will give you additional practice with relevant data analysis. These will typically require time outside of our lab meetings and will be turned in for a grade by announced due dates.

Laboratory Reports (50%)

Information about each lab report (including due dates) will be given out in separate handouts. We will also discuss laboratory reports during class time.

- 10% Project 1 Lab report (Bucholtz)
- 5% Project 2 Lab report (Pounds)
- 5% Project 3 Lab report (Pounds)
- 5% Project 4 Proposal
- 20% Project 4 Lab report
- 5% Project 4 Presentation

Laboratory report guidelines and assignment expectations will be discussed in class. Modifications to this schedule will be announced in class and/or via email. Assignment deadlines will be announced in class. **No late work will be accepted.** An assignment is late one minute past the assigned deadline. If you have any questions about citations, please see an instructor for assistance. All suspected violations of the honor code will be turned in to the Honor Council.

Attendance Policy

Students are required to be present in the laboratory during the full class meeting time. **Two unexcused absences will result in an F for the course.** There are no scheduled make-up periods, so it will be very difficult to complete an assigned project after missing a laboratory period. While the faculty will make reasonable efforts to work with students to provide time to make up excused absences, all students are required to turn in reports by the announced due dates. **More than three absences of any kind will result in an F for the course.**

Excused Absences (1) medical or mechanical emergencies with appropriate **documentation** presented to the professor as soon as possible (2) illnesses reported to the professor **prior** to the scheduled course meeting (documentation may be required); or (3) Mercer University events for which the appropriate office has provided an advance request to excuse participants.

Website and Email

Website: The class website is located at <http://theochem.mercer.edu/chm371> . This site will be used to disseminate information to the class. You will always find a copy of your class syllabus on this site. In addition, personalized datasets and other reference materials may be placed on this website for student use. In some instances you will need to have *Javascript* active on your internet browser.

E-mail Listserv: An e-mail listserv will be used copiously to send important and timely information to the class. You may also use the listserv to communicate with all of your classmates. Drs. Pounds and Bucholtz will moderate the listserv to eliminate spam or messages deemed inappropriate. To sign up for the listserv and to learn how to send information to it, please go to <http://theochem.mercer.edu/mailman/listinfo/chm371>.

Other Policies

Cell Phone: Out of courtesy for all those participating in the learning experience, all cell phones and pagers must be turned off before entering any classroom, lab, or formal academic or performance event.

Honor Code: All graded assignments, including lab reports, are covered by the Honor Code. Plagiarism and sharing work are never allowed. All violations will be handed over to the Honor Council.

Reasonable Accommodation:

From the Provost's office: "Students requiring accommodations for a disability should inform the instructor at the close of the first class meeting or as soon as possible. The instructor will refer you to the Disability Support Services Coordinator to document your disability, determine eligibility for accommodations under the ADA/Section 504 and to request a Faculty Accommodation Form. Disability accommodations or status will not be indicated on academic transcripts. In order to receive accommodations in a class, students with sensory, learning, psychological, physical or medical disabilities must provide their instructor with a Faculty Accommodation Form to sign. Students must return the signed form to the Disability Services Coordinator. A new form must be requested each semester. Students with a history of a disability, perceived as having a disability or with a current disability who do not wish to use academic accommodations are also strongly encouraged to register with the Disability Services Coordinator and request a Faculty Accommodation Form each semester. For further information, please contact Carole Burrowbridge, Disability Services Coordinator, at 301-2778 or visit the Disability Support Services website at <http://www.mercer.edu/studentaffairs/disabilityservices>."

Email/Electronic Submissions: Students bear sole responsibility for ensuring that papers or assignments submitted electronically to a professor are received in a timely manner and in the electronic format(s) specified by the professor. Students are therefore obliged to have their e-mail client issue a receipt verifying that the document has been received. Students are also strongly advised to retain a copy of the dated submission on a separate disk. Faculty members are encouraged, but not required, to acknowledge receipt of the assignment.

Approximate Schedule for CHM 371.001 and 371.002, Fall 2012

Modifications are likely and will be announced during class or via email.

LAST DAY FOR WITHDRAWAL: October 28

Date	Material / Research Task	Important Events/Deliverables
Aug 22	Group discussion of course and projects <i>Computational Tools</i>	
Aug 27		
Aug 29	<i>Error Analysis</i>	
Sept 3	<i>No classes</i>	<i>Labor Day</i>
Sept 7	<i>Project #1, #2, and #3 Lab Work</i>	
Sept 10		
Sept 12		
Sept 17		
Sept 19		
Sept 24		
Sept 26		
Oct 1	<i>Discuss Project 4</i>	<i>First Drafts, Projects 1 and 2</i>
Oct 3		
Oct 8		
Oct 10	Prior to turning in the final drafts for Projects 1, 2, and 3, students may also use lab time during this segment of the course to refine or repeat experiments and calculations for those projects as warranted.	<i>First Drafts. Project 3</i>
Oct 15		
Oct 17		<i>Proposal, Project 4</i>
Oct 22		<i>Final Drafts, Projects 1 and 2</i>
Oct 24		
Oct 29	<i>Project #4 Lab Work</i>	
Oct 31		<i>Final Draft, Project 3</i>
Nov 5		
Nov 7		
Nov 12		
Nov 14		
Nov 19		<i>First Draft, Project 4</i>
Nov 21	<i>No classes</i>	<i>Thanksgiving Break</i>
Nov 26		
Nov 28		
Dec 3		
Dec 5		<i>Final Draft, Project 4</i>
Dec 10	<i>Final Exam time, 2:00 pm – 5:00 pm</i>	<i>Group Presentations on Project 4</i>