

CHEMISTRY 104

Lectures 3 and 5, Spring 2015

Keep This Syllabus for Future Reference

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| General Chemistry 104 | 5 credit hours |
| Lectures | Lecture 3: 1:20 – 2:10 PM, MWF 1351 Chemistry Lecture 5: 3:30 – 4:20 PM, MWF 1351 Chemistry |
| Lecturer | Dr. Oana M. Martin |
| Office | Room 2132 Chemistry |
| Office Hours | TBA |
| Email | omartin@chem.wisc.edu |
| Quizzes | Given in the second discussion section each week |
| Website | Learn@UW |

Chemistry 104 is the second semester of a first-year course in college chemistry. Students in Chemistry 104 are presumed to have taken Chemistry 103 or its equivalent.

Required Material

Unless you already have it, you will need to purchase each item listed below. These are the only required items for this lecture.

- 1. Textbook:** *Chemistry the Central Science, Brown, Lemay, Bursten, Murphy and Woodward, 12 edition. Pearson*
- 2. Lab Manual:** *Chemistry 104 Laboratory Manual, Spring 2015*, Chemistry Department, University of Wisconsin-Madison; available in the chemistry building lobby from Alpha Chi Sigma, sold (cash only) during the first two weeks of class.
- 3. Lab Notebook:** Carbonless laboratory notebook with duplicate pages available from Alpha Chi Sigma or local bookstores.
- 4. Safety Goggles:** Industrial quality eye protection is required at all times when you are in the lab. Safety goggles that completely seal around the eyes and fit over regular glasses can be purchased from local bookstores.
- 5. An electronic RF “clicker”.** The lectures will make extensive use of student “voting” on concept tests, surveys, and other questions. You will need to buy an I-Clicker radio-frequency clicker and bring it to every lecture. These can be purchased at the University Bookstore.
- 6. Calculator:** An inexpensive calculator is required. It should have capabilities for square roots, logarithms and exponentiation (antilogarithms), and exponential (scientific) notation operations. The calculator will be used on homework assignments, quizzes, exams, and in the lab. Any programmable calculator may be used so long as 1) it is allowable for both the ACT and SAT exams and 2) it is only used for simple mathematical calculations and not used to store information such as chemical formulas or equations.

- 7. A Mastering Chemistry account for access to on-line homework.** This is bundled with your textbook for no additional charge. Instructions for registering are given on the course homepage on Learn@UW. If you purchased a used textbook or received one from another student, **you must purchase your own access to the Mastering Chemistry system** online at: <http://www.masteringchemistry.com>. If you already registered with Mastering Chemistry for Chemistry 103, you need to enroll in this course to gain access to the homework.
- 8. USB Flash Drive:** A USB flash drive that will hold at least 2 GB is required for lab data collection.

Web-Based Course Materials and Class Emails

To access Web-based materials, you must have activated your UW-Madison NetID so you have an ID and password. Much information about this course will be transmitted via email, using an automated email list based on registration in the course. **You must use your @wisc.edu email for UW-Madison communications** to ensure that your instructor receives your email. You can tell your other email accounts to forward to your @wisc.edu email account, or *vice versa*.

Course Organization and Expectations

This course has been designed and organized to help you learn chemistry, but no course or instructor can learn for you. Learning is something only you can do. For that reason you are the most important feature of the course. This means that you will need to devote considerable out-of-class time to studying the subject. The rest of this syllabus outlines the features of the course that will help you learn.

Throughout Chemistry 104 emphasis will be placed on understanding chemistry and learning to think effectively in solving scientific problems. However, **to think effectively and to understand problems, it is necessary to have a basic knowledge of facts and terms: a vocabulary of chemistry.** Most of this background and vocabulary should have been obtained from Chemistry 103 or its equivalent. From time to time you may need to review material you studied last semester (or whenever you took Chemistry 103) in order to understand the new material presented in this course. Chemistry is a cumulative subject; what you learn this semester will build upon background material that you learned earlier.

Lectures

You are expected to attend all lectures. During lectures we will discuss principles, outline goals, and present illustrations and demonstrations. We will make frequent use of in-class "ConceptTests" for which you will use your electronic clickers to vote for answers and, following discussions with your neighbors, revise your votes. A lecture is not intended to describe or explain everything you should learn; rather, it will indicate what topics it is important to study and should provide some insight into those topics. Lecture will also give you an opportunity to think about these topics and see if you understand them. You should take notes during lecture, but this ought not be a passive, unthinking process. Your notes should reflect your understanding of what you heard and saw, not just a repetition of what the lecturer said or wrote on the chalkboard. Sample lecture notes taken by a TA will be posted

on Learn@UW shortly after each lecture. Occasionally Powerpoint will be used and the slides will be available to download from the course web page.

Lecture Demonstrations. Many chemical reactions and other phenomena are sufficiently dangerous or expensive that it is not practical for all students to experience them first hand. Nevertheless such reactions may illustrate important principles or show important facts that will be useful later on in chemistry and other science courses, or in everyday life. The UW-Madison Chemistry Department has a tradition of using lecture demonstrations to help students understand chemistry. When a demonstration is done in class, make careful observations of what happens and make certain that you understand the principles the demonstration is designed to illustrate. All demonstrations are important, and questions about observations or principles that have been presented via demonstrations can occur on examinations.

Textbook. The textbook supplements the lectures. It provides background material for the lectures and also works out many relevant examples. In addition, at the end of each chapter are a number of problems, and in the appendices are answers to selected problems. For an understanding of the material in this course it is important to solve as many of these problems as possible.

Discussion/Laboratory Sections. Discussion sections are for questions, help, review, and problem solving relevant to recent lectures, homework, laboratory experiments and other assigned material. You should be prepared when you come to the discussion class and ask specific questions. Your TA may also discuss material relevant to the laboratory in discussion section.

On Line Homework. There are weekly on-line "Mastering Chemistry" homework assignments. See the course schedule for the due dates. You need to be registered on the Mastering Chemistry website to gain access to the assignments (see link and instructions on Learn@UW). If you already registered for Chemistry 103, you still need to enroll in this course (the course code is MCMARTIN43672). The homework should be printed out at the beginning of the week, and the answers should be entered online before 11 pm on the day of the assignment. There is a 55 minute grace period after which no uncompleted problems can be accepted. Additional problems from the book will be assigned as practice before exams, but not graded. Chemistry is a problem solving science, and the importance of working these problems cannot be understated. We encourage you to work in groups and not attempt to work on the questions at the last minute. If you encounter technical difficulties with Mastering Chemistry pertaining to how answers are submitted/accepted or why you did not get credit for an answer that was later revealed to be correct, please send an e-mail to chem104hw@chem.wisc.edu with your name, course number (104), lecture section (3) or (5), and a brief description of your difficulty.

Weekly Quizzes. A quiz will be given in the second discussion section each week, except for the first week of classes, the last week of classes and the weeks when there are exams. Quizzes will be 15-20 minutes long, will be pencil-and-paper, and will consist of questions more challenging than some of the online homework: questions that combine two or more concepts or require more thought to answer. *There are no makeup quizzes. To account for a possible absence, the best 10 out of 11 quiz scores will be counted.*

Laboratory

The laboratory is extremely important to an understanding and appreciation of chemistry. In laboratory you will have the opportunity to do chemistry and to apply experimental techniques to solving chemical problems. You should prepare in advance for each laboratory exercise by writing up an introduction and procedural outline in your lab notebook. During the lab period you will carry out the experiment, take notes, and complete your data analysis. All your work must be turned in most of the time at the end of the period in the form of the duplicate pages from your lab notebook. Your laboratory report is

due at a time specified by your TA. Please note that late laboratory reports are not graded. You will be graded on your in-lab experimental technique and data analysis, and on your note taking skills. The schedule of labs is given in the course schedule provided. In some cases you will need to work with other students in your lab to devise an experimental procedure to solve a problem. We encourage you to discuss your work with your fellow students and TA while doing the experiment. However, your lab write-up must be done as indicated in the lab manual, which often means an individual write-up. A more detailed description of how lab work will be carried out is provided in the lab manual. **You must successfully complete the laboratory assignments, achieving a score of 60% or more, in order to receive a passing grade in the course.**

Safety Quiz If you have not taken Chem 103 during the past year, you must pass the Safety Quiz with a perfect score before you can begin lab work. Therefore you should study the safety information in your laboratory manual and take the Safety Quiz available in Learn@UW as soon as possible. You must complete the Safety Quiz before your laboratory session the week of January 26. You can take the Safety Quiz as many times as necessary to attain a perfect score.

Resources. Your best source of information is your teaching assistant. They understand what it takes to succeed in this course and are trained professionals who can help you navigate this semester. TA office hours are posted in Learn@UW and you are encouraged to attend any of the hours that work with your schedule. The Greater University Tutoring Service (GUTS) offers free assistance to any student in this class via a variety of programs. These include study group tutoring, individual tutoring, study skills counseling. The chemistry fraternity Alpha Chi Sigma also provides free tutoring. You can meet with the professor after class, during their office hours, or by setting up an appointment by email.

Technology Enhanced Learning

Much of the material for this course is only available via Learn@UW. You are urged to visit the web site routinely for up to date class information. You have access to the 104 materials via Learn@UW only if you are enrolled in this course. You can use Learn@UW on your own computer, a friend's computer, or any other computer on campus. Direct your Web browser to <https://learnuw.wisc.edu/> and log in. You will be asked for your NetID Username and Password. If you have a problem logging in, and you have been registered for this section of Chem 104 for at least two days, send an email to rbain@chem.wisc.edu.

Piazza, an online discussion forum, will be used to facilitate student discussion throughout this class. To sign up for piazza and enroll in this course follow this link piazza.com/wisc/spring2015/104_003005. You will also receive an email message from piazza that will direct you to sign up. Participation in this online discussion is optional and will not count towards your grade. You are encouraged to ask questions on piazza, rather than via email. You can post questions anonymously or answer questions posted by other classmates. The questions will be organized in folders according to the topic, please make sure you post in the correct folder. The instructor and TAs will monitor the questions and answers, making sure that the content is correct. *You are not allowed to post questions asking for an answer to a homework question, however you can discuss the general concepts and steps necessary to solve the problems.*

Midterm and Final Exams

There will be three midterm exams of 50 minutes each and a two-hour final exam. *No make-up exams will be given.* The three tests, given during the class period (see course outline for dates), are based on material presented in lectures and assigned problems. Tests may also include questions based upon laboratory material. The two hour final exam is comprehensive, covering topics from the entire semester. The dates of the exams are included in the course schedule.

Grades

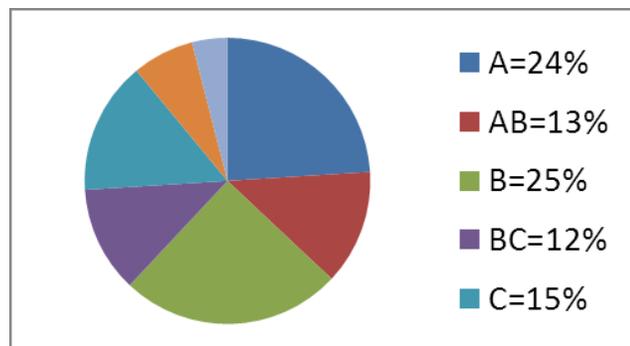
Your grade will be based on a maximum of 1000 points divided as follows:

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| Online Homework assignments | 100 points; |
| 10 Quizzes (best 10 out of 11) | 100 points; |
| Laboratory | 220 points; |
| Biomolecules tutorials and quizzes | 20 points; |
| Chem Tutor assignment/lab study | 10 points; |
| Clicker Points* | 30 points; |
| TA Personal Evaluation** | 20 points; |
| Three midterm exams | 300 points; |
| Final Exam | 200 points. |

* 30 points are given for responding to 80% of all clicker questions; 15 pts are given for a 60%.

**TA Personal Evaluation: This provides a means for your TA to evaluate your overall performance in discussion section and in lab. Your grade will be based on your attendance, preparation, and participation in discussion and lab.

Letter Grades. The approximate distribution of final grades is given below. The top 24% of the scores will receive A's and so forth. It is important to note that the distribution will be adjusted upwards if class performance exceeds our expectations. **One cannot improve this grade by performing additional work.**



Approximate Distribution of Final Grades

Health or Disability Concerns. All students at UW are entitled to an accessible, accommodating, and supportive teaching and learning environment. The provision of reasonable accommodation for students with disabilities is a shared faculty and student responsibility. Students are expected to inform their professor of their need for accommodation; the professor and TA are expected to make the necessary arrangements. If you have special needs, please make an appointment to speak to your professor and TA at your earliest convenience. If you have a condition that might result in a seizure, loss of consciousness, or other situation that might endanger your safety or the safety of others in the laboratory, please inform your TA.

Missing Class or Other Deadlines. If illness or other circumstances prevent you from attending an exam, meeting an assignment deadline, or attending laboratory your TA will work to accommodate the absence as long as you email him or her before the scheduled meeting time or deadline. If you are ill and cannot attend class, you will be able to use the class notes and PowerPoint slides on Learn@UW to obtain missed information.

Plagiarism and Academic Misconduct. You will be writing laboratory reports and answers to homework questions in this course. It is not OK to simply copy and paste material from the Web into these reports or answers. The UW-Madison Writing Center has a good description of how to paraphrase or quote material that you did not write yourself. It is available at <http://writing.wisc.edu/Handbook/QuotingSources.html>. Copying results or answers to questions, homework, or exams from someone else and passing them off as your own work is academic misconduct and will not be tolerated. Such misconduct is grounds for a failing grade in this course.