Chemistry 311
Chemistry Across the Periodic Table
Fall 2014

Read This Syllabus Today. Keep It for Future Reference.

Chemistry 311, including lab	4 credit hours
Whole Class Sessions:	1:20 pm MWF B371 Chemistry
Discussion Sessions:	7:45 am T or R B371 or 1315 Chemistry
Laboratory Sessions:	8:35 am T or R 1329 Chemistry
Instructor Information:	Professor Judith N. Burstyn 5327 Chemistry (262-0328) http://chem.wisc.edu/users/burstyn burstyn@chem.wisc.edu
Office Hours:	M 5:00 – 6:00 pm*, 5327 Chemistry or call or email for an appointment

The 118 known elements are the building blocks of every substance on earth. In Chem 311 you will learn about patterns of reactivity among chemical families, unique properties of selected elements, and how these reactivity patterns and properties are manifest in biological and industrial applications. The course will emphasize coordination chemistry of the transition metals, bioinorganic and solid-state chemistry. You will learn about reactivity through laboratory exploration and problem solving. Students in Chem 311 are expected to have successfully completed Chem 104, Chem 109, Chem 115 or an equivalent with a grade of C or above.

Course Organization and Expectations

A recommended study strategy for this course is: 1) read the assigned material in the text before each whole class session, 2) attend class, take your own notes, and actively participate in class exercises, 3) as soon as possible after class, begin to work homework problems. When you encounter problems that you cannot solve, refer to the text, your notes, library resources, or your fellow students. Forming a study group with fellow students to review and problem solve is an excellent way to learn chemistry.

To help you to master the new material presented in this course, specific learning objectives are provided for each exam. These objectives are available in the Exam Preparation Materials area in Moodle (see below). Use the learning objectives to guide your work on the problem sets and to review for the exams. Additional study questions keyed to the learning objectives are also available in the same location. Practice exams and fully worked out answers will be available for you to use in preparing for each exam.

Various learning activities are offered to meet the needs of different types of students; however, if you find that your learning needs are not being met or that you are not satisfied with some aspect of the course please bring your concern to your professor, your TA, or your Student Board of Directors representative.

Evaluation Strategies: Two midterm exams, the best ten of twelve problem sets, and twelve laboratory exercises will be the basis for your grade in Chem 311. The midterm exams will be held at 5:40 pm on Wed. Oct. 8 and Wed. Nov. 12. The final exam will be held at 7:45-9:45 am on Friday, December 19. Please notify Prof. B. and your TA of any conflicts promptly.

Required Text & Materials

Textbook: *Descriptive Inorganic, Coordination, and Solid-State Chemistry*, 3rd Edition, Glen E. Rodgers, Brooks/Cole 2012, available from local bookstores or on-line. It's OK to use the 2nd edition if you prefer to do so.

Calculator: An inexpensive calculator is required. It should have capabilities for square roots, logarithms and exponentiation (antilogarithms), and exponential (scientific) notation operations. You may use programmable calculators in this course.

Auxiliary Materials: The following materials may be purchased from Alpha Chi Sigma (AXΣ) in the Mills St. atrium of the chemistry building beginning at 7:30 am on Sept. 2.

Lab Manual *Chemistry 311, Laboratory Manual*, Fall 2013 edition. (Only sold by AXΣ.)

Lab Notebook: Carbonless laboratory notebook with duplicate pages. You will need a new notebook for Chem 311 because you will use all the pages.

Safety Goggles: Industrial quality eye protection is required at all times when you are in the lab. AXΣ sells safety goggles that completely seal around the eyes and fit over regular glasses. These goggles meet our safety requirements.

Chem 311 Moodle Web Site

Much of the material for this course is only available via Moodle. You automatically have access to the 311 materials via Moodle (https://courses.moodle.wisc.edu) if you are enrolled in this course. If you have a problem logging in, and you have been registered for Chem 311 for at least two days, send an email to technology specialist Dr. Rachel Bain, rbain@chem.wisc.edu.

Problem Sets: Problem sets will typically be due on Monday. Each problem set should take about two hours to complete and will be graded on a low-resolution scale: 0 (not turned in), 3, 4, or 5 points. Your best 10 of 12 5-point problem sets will be used in calculating your final grade.

Laboratory: The 311 laboratory is designed to be an integral part of your learning experience. In the lab, you will focus on two primary objectives: the synthesis of compounds and the analysis of their structure. These are essential goals of modern inorganic chemistry research. Your lab exercises will give you the opportunity to explore the reactivity of a wide variety of elements with your own hands, and you will experience the beauty and variety of inorganic compounds. By the end of the semester, you will have prepared your very own rainbow of products. Many people who become inorganic chemists were inspired by their lab experience.

Exams

Learning Objectives, Study Questions and Practice Exams: Learning objectives for each exam, and a selected set of study questions from the textbook keyed to the learning objectives, are in the Exam Preparation Materials area in Moodle. Practice exams are also available. The study questions are typical of those you should master and you should use them to build your mastery of the course content.

How To Prepare For Exams: A recommended strategy is: 1) review the learning objectives for the exam referring to your notes or the text if necessary, 2) work the study questions associated with each objective, spending more time working problems on those topics you find most challenging, 3) simulate the test taking situation by working the practice exam in 50 minutes in a quiet place, 4) "grade" your own test using the answer key as your guide, 5) review those areas that you identify as weak.

Important Administrative Information For Chemistry 311

Student Board of Directors: The Student Board of Directors provides feedback to Prof. B. from the students on how the course is going. The Board consists of one representative from each discussion/lab section, chosen by the students in that section. The board will meet nearly every week* at 4:30 pm on Monday to discuss course policies, structure, and content. Meetings will take half an hour. Your TA will solicit volunteers for this role in your first discussion. If you are interested in serving as your class representative, send your TA an email (see below) as soon as possible. Include your name, your email address, and your section number in your message.

Electronic Mail: You are encouraged to contact Prof. B. by email if you have questions about anything to do with the course. Electronic mail is available at all times of day and night, so you can send messages whenever something comes to mind. Do not, however, expect immediate responses in the middle of the night! Prof. B.'s email address is Burstyn@chem.wisc.edu. Because Prof. B. gets hundreds of messages every day to that account, she asks that you put the words "Chem 311" in the subject line of any message you send to her. NOTE: *Messages sent without this subject line will likely be buried!*

What To Do If You Are Sick, Or Otherwise Unable To Attend An Exam or Lab: If you are unable to attend a specific lab session because of an unavoidable schedule conflict, for example a religious observance, an athletic activity or a family obligation, contact your TA as soon as possible to reschedule. Make up lab times can be accommodated only during the week when the entire class is doing a lab exercise, so planning ahead is important. If you find that you are unable to attend lab because you are ill, contact your TA as soon as possible. He or she will discuss your situation and decide what to do. **If circumstances arise unexpectedly that preclude your taking an exam, please contact your TA and Prof. B. before the scheduled exam time.** We recognize that in an emergency situation, you may not be able to contact us in a timely way.

Chemistry Resource Facilities - Computer Room, Study Room, Undergraduate Chemistry Office, Chemistry Library: Computers are available for use in room 1375 Chemistry. Room 1371 is a study room for chemistry students. The staff in the Undergraduate Chemistry Office, room 1328, can assist you with enrollment, advising, and many other things. The Chemistry Library, on the second floor above the main lecture halls, is a wonderful place to study. Different textbooks, reference works, on-line database searching and other resources for chemistry students are readily available. Specific materials for this class may be placed on reserve in the Chemistry Library.

Cell Phone / Computer Policy: If you bring a cell phone to class or lab, please silence it for the duration of the class or lab period. If there is a situation that absolutely requires you to answer your cell phone during a class, please set the phone to silent/vibrate and sit in a location where you do not disturb other students when leaving the classroom to accept a call. Computers may not be used during class or lab sessions.

*The Board of Directors will not meet Oct. 6, Nov. 3 or Dec. 1. On those dates, Prof. B.'s office hours will be from 5:15-6:15 pm.

Grades

Your grade will be based on a maximum of 500 points divided as follows:

Best 10 of 12 Problem Sets @ 5 points each *(see course schedule for due dates)*	50 points
Twelve Laboratories will make up 30% of your grade* *(each week's experiment is listed in the schedule)*	150 points
Two midterm exams @ 75 points each *(dates and times are listed in the course schedule)*	150 points
Final Exam *(date and time is listed in the course schedule)*	150 points
Total	500 points

*Twelve laboratory exercises worth 140 points plus a 10-point spectroscopy assignment.

Letter Grades: Final letter grades will be based upon the absolute scale shown below. If you score the number of points indicated, then you will receive the letter grade indicated, regardless of how many other students achieve the same grade. There is no curve. Therefore it is to your benefit (and to your friends' benefit) that you help other students learn and they help you learn.

A	450 points or more	≥90%
AB	435 to 449 points	87-89.9%
B	410 to 434 points	82-86.9%
BC	375 to 409 points	75-81.9%
C	325 to 374 points	65-74.9%
D	275 to 324 points	55-64.9%
F	<275 points	<55%

If necessary, adjustments will be made at the end of the semester, but these adjustments will never lower your final letter grade, only raise it.