

SYLLABUS
Chemistry 511
Inorganic Chemistry

Professor D. W. Bennett

Spring, 2017

Office: Chemistry 845

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Office Hours: By e-mail appointment .

Lecture: MWF 1:00 P.M. -1:50 P.M.
Chem 170

	Possible Score
Grading:	
Mid-term Exam (Take-home)	200
Final Exam (Take-home)	200
Homework	<u>200</u>
Total	600

Recommended Text: *Shriver & Atkins' Inorganic Chemistry, 6th Ed.,*
ISBN-13: 978-1429299060.

Course Description: 3 cr. U/G. Introduction to theoretical principles and descriptive chemistry of the elements. Does not count toward graduate degree in Chemistry. Prereq: jr st & grade of C or better in Chem 562(P); or grad st.

Course Objectives and Methods: Chemistry 511 is designed to provide you with an introduction to the field of inorganic chemistry. The vast diversity of this field makes inorganic chemistry impossible to survey in a single semester. Rather than attempting to cover many topics in a cursory fashion I we will focus on what is arguably the most important area in inorganic chemistry – understanding chemical bonding. Other topics will develop naturally within this context. It is important for every chemist, regardless of his/her area of expertise, to have an understanding of the nature of the chemical bond.

Unfortunately, there are virtually no good inorganic chemistry textbooks. I have suggested one of the “better” texts as a recommended reference, but will provide you chapters from various texts and/or other references that better describe the concepts that I will be discussing in class.

We will begin by emphasize underlying principles that are essential to an understanding of chemistry (not just inorganic chemistry), and we will cover those topics thoroughly. The topics are so important that we will often treat them in significantly more depth than they are covered in the suggested text, or others. If you fail to attend lecture you will miss this additional treatment. See “Homework Problems” below to see why it is important that you *attend lectures and take notes*.

We will also cover some descriptive inorganic chemistry when the material serves to enhance your understanding of the fundamentals.

Homework Problems: On Saturday or Sunday of each week I will e-mail a set of homework problems to you (they will be in pdf format). Assignments will begin with three problems (one for each lecture) which are “look ahead” in nature. They will specifically be designed to be solved from material that you glean from lecture. Unless you are already very familiar with the material that we are covering, it will probably be very difficult for you to solve these problems unless you *a) read the problem before attending the lecture that it is designed for and b) come to lecture to learn how to solve the problem.* Additional problems will be added to reinforce concepts already covered. In some cases they will reflect the problems on the previous homework set for which there is indicated an apparent lack of understanding,

Mid term and final take-home exams will be based on these problems. The problems are to be solved and handed in on the Monday of the week following their submission to you. I will collect them at the end of lecture on that Monday, to be handed in personally by you. Please pay close attention to the following rules:

I will accept no late homework – no exceptions. I will not accept homework outside of lecture for any reason (in the hall, in my mailbox, under my door, etc.). If you do not hand your homework in at the end of lecture on the date that it is due, then you will receive a zero. If you are traveling, or going to a wedding, a job interview, or on vacation, etc. you will still receive a zero. I will drop your lowest homework score.

I will accept homework in the following form only:

Solutions presented neatly and clearly (recopied from your scratch work).

Problems in sequence.

8.5 “ X 11” (standard) paper.

Stapled, pages in order and numbered.

Folded lengthwise.

The following, written on the front of the folded homework (fold to the left):

Your Name (printed neatly)

Problem Set Number

Chemistry 511

The Date (date that they are due)

If it does not follow this format *exactly* I will return it to you with a zero.

Problems will be graded on a 25 point basis as follows:

Reasonable effort – neatly presented 1- 10 points

Essentially correct – Additional 1 - 10 points

Completely correct – Additional 5 points

Failure to hand in 3 or more homework assignments will result in an automatic F for the course.

Exams: There will be two take-home exams. While you are encouraged to work on homework assignments together, you ***must*** complete the take-home exams entirely on your own. Failure to follow this mandate will be considered academic misconduct and will result in a grade of F for the course.

University and Departmental Policies: For information regarding university policies please visit the following web site maintained by the Secretary of the University:

<http://www.uwm.edu/Dept/SecU/SyllabusLinks.pdf>.

The university academic misconduct policy:

http://www4.uwm.edu/acad_aff/policy/academicmisconduct.cfm

Chemistry Department policies are posted on bulletin boards across from Chemistry 195 and Chemistry 164. The Departmental Academic Misconduct Policy:

Academic misconduct will not be tolerated in any form by The Department of Chemistry and Biochemistry. Academic misconduct is especially egregious in the following cases:

1. The forging of signatures of any instructional staff member.
2. The intentional falsification of information or data on any document (including exams).
3. Plagiarism in any form.
4. Cheating on exams, quizzes, laboratory reports or homework assignments. In all cases of academic misconduct, but especially in the cases listed above, the Department will pursue the maximum penalties possible.

Schedule

The following schedule is approximate and subject to (almost certain) change:

Lectures	Problems Due	Emphasis
Jan 26, 27, 29		Atomic Structure
Feb 1, 3, 5	Feb 1	Atomic Structure
Feb. 8, 10, 12	Feb 8	Atomic Structure
Feb. 15, 17, 19	Feb 15	Atomic Structure
Feb 22, 24, 26	Feb 22	Covalent Bonding
Feb 29, Mar 2, 4	Feb 29	Covalent Bonding
Mar 7, 9, 11	Mar 7	Covalent Bonding
Mar 21, 23, 25	Mar 21	Ionic & Metallic Bonding
Mar 28, 30, Apr 1	Mar 28	Ionic & Metallic Bonding
Apr 4, 6, 8	Apr 4	Ionic & Metallic Bonding
Apr 11, 13, 15	Apr 11	Molecular Symmetry
Apr 18, 20, 22	Apr 18	Molecular Symmetry
Apr 25, 27, 29	Apr 25	Physical Methods
May 2, 4, 6		Physical Methods