

Instructor: Dr. Deanna L. Zubris
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Office hours: MR 4:30pm–5:30pm and by appointment

Text: *Inorganic Chemistry*, 3rd Edition, G. L. Miessler; D. A. Tarr, Pearson/Prentice Hall, 2004. ISBN: 0-13-035471-6

Lectures: TR 6:00–7:15 pm, Mendel Hall Room 213

Contents:

Inorganic chemists investigate every element of the periodic table. Understandably, inorganic chemistry plays an increasingly important role in many aspects of modern-day life. Materials science, polymer science, agriculture, and pharmaceuticals all benefit from advances in the field of inorganic chemistry. This course will emphasize the fundamentals of inorganic chemistry as a basis for understanding current applications and advances. Topics such as symmetry, molecular orbital theory, acids and bases, solid-state chemistry, coordination compounds, ligand field theory, reaction mechanisms, and organometallics will be discussed. Throughout the course, there will be an emphasis on chemical bonding.

Grading:

In-class Examinations:	45%
Literature Discussions and Summaries:	15%
Take-home Final Examination:	20%
Final paper and presentation:	20%

General Policies:

1. There will be two in-class 75-minute exams (Exam I and II) and a take-home final exam. The dates for the exams are tentatively listed below. If there is a date change for an in-class exam, it will be announced in class and via email (note: if you have a preferred email address that *is not* your Villanova address, please inform me as soon as possible). Exam II will be cumulative, but will concentrate on the material following Exam I. The take-home final exam will also be cumulative, but will concentrate on the latter third of the course. More details regarding the take-home final exam will be given later in the semester.
2. An excused absence for an exam will require a make-up exam, which may be more challenging than the original exam. Requests for make-up exams should be submitted *as soon as possible* and must be submitted *prior to* the regularly scheduled exam.
3. Problem sets will be distributed periodically throughout the course. While problem sets will not be collected and graded, they are intended to reinforce concepts from class so I suggest that you give them your best effort. These problems will be similar in difficulty and content to the problems on the exams. Answer keys will be posted as indicated on the assignments.
4. Periodically throughout the semester, a paper from the recent inorganic literature will be distributed in class for discussion the following class period. To help focus the discussion, a brief summary of the paper will be due on the discussion date. A list of questions to be

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4. (*continued*) addressed in this summary will be provided. You will be evaluated on both your contributions to the discussion and your summary. You will receive an overall grade for a given literature discussion and summary of (+ +), (+), (✓), or 0.
5. Near the end of the semester, you will choose a current research area in inorganic chemistry to be the subject of your final paper and presentation (note the important dates below). Your final paper should be 5 pages long. The presentations will each be approximately 15 minutes in length and given during the last week of class. Attendance is required for all of the presentations. The paper must provide pertinent background information for the topic and highlight findings from (at least) one recent journal article. Information from several sources is to be combined into a summary that would explain the current research to someone with no prior knowledge in the specific research area. The papers and presentations are to be succinct and to the point. The use of ChemDraw™ for figures is required. I will provide further details regarding this paper and presentation as the course progresses.

Important dates:

- First Class: Thursday, August 24
- Labor Day: Monday, September 4
- Exam I: Thursday, September 21 (tentative)
- Semester Recess (no class): Tuesday, October 10 and Thursday, October 12
- Exam II: Thursday, October 26 (tentative)
- Submit topic for final paper: Thursday, November 16
- Thanksgiving Recess (no class): Thursday, November 23
- In-class presentations: Thursday, November 30, Tuesday, December 5 and Thursday, December 7
- Last day of this class: Thursday, December 7
- Take home exam distributed: to be announced
- Final paper due: Tuesday, December 12, 6:00 pm
- Take home exam due: Tuesday, December 19, 6:00 pm

Journals where you'll find inorganic manuscripts:

- Journal of the American Chemical Society (ACS)
- Angewandte Chemie International Edition
- Chemical Communications
- [Accounts of Chemical Research (ACS)]
- [Chemical Reviews (ACS)]
- [Chemical and Engineering News (ACS)]
- Inorganic Chemistry (ACS)
- Organometallics (ACS)
- Journal of Organometallic Chemistry
- Dalton Transactions
- European Journal of Inorganic Chemistry
- Zeitschrift für anorganische und allgemeine Chemie