

# CHEMISTRY 342 COURSE SYLLABUS

Chemistry 342  
Advanced Inorganic Chemistry  
Spring 2017

Class meeting time:  
T,Th 11:30 – 12:45  
237 Physical Science

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249 Physical Science  
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## Learning Outcomes

Students successfully completing this course will demonstrate the following:

- an understanding of the scope of the field of Inorganic Chemistry;
- an understanding of the connections between physical, organic, and inorganic chemistry;
- an understanding of molecular orbital theory and the ability to apply it to bonding, structure, and spectroscopy of inorganic compounds;
- a general understanding of coordination chemistry and the fields of organometallic chemistry (including catalysis) and bioinorganic chemistry; and
- an ability to read and critically analyze papers from the inorganic literature.

## General Information and Policies

### Textbook

*Inorganic Chemistry*; 5th edition, Miessler and Tarr

Bring to all class meetings.

### Attendance

Attendance is expected at every class meeting. If you must miss class due to illness, emergency, or unavoidable circumstances, inform me before class begins. Class participation (including attendance) counts for 5% of your total grade.

### Office Hours

Tuesday 3:30 PM – 4:30 PM

Thursday 4 PM – 5 PM

Friday 1 PM - 2 PM

Other times by appointment or just stop in.

### Outcomes Assessment

Mastery of course content will be assessed by exams and homework assignments. Two take-home exams will be given during the term, and the dates will be announced at least one week in advance. If an exam due date must be missed due to illness or personal emergency, a written, verifiable explanation must be presented before the exam is due. No late exams will be accepted. There will be a comprehensive take-home final exam with an in-class component during our scheduled final exam time. During the weeks that an exam is not scheduled, homework will be assigned. All homework assignments will be submitted for a grade.

The ability to read and critically analyze literature papers will be assessed by a literature presentation and a literature exam. During the semester, each student will present a paper (of their own choosing from an approved journal) to the class from the inorganic literature. Evaluation criteria will be discussed in class and will include an emphasis on the critical analysis of the research presented in the article. During the last week of classes, there will be a literature exam based on a paper from the current inorganic literature chosen by the course professor.

### Overall grading scheme:

Two exams	40%
Final exam	15%
Homework	15%
Literature presentation	10%
Literature exam	15%
<u>Class participation</u>	<u>5%</u>
Total	100%

The following grading scale will be used:

A(100–90); B(90–80); C(80–70); D(70–60); F(<60).

Plus or minus grades are assigned at the instructor's discretion when averages are near the borderline between two letter grades.

# TENTATIVE CLASS SCHEDULE

Any changes to this schedule will be announced in class.

Week of	Class Assignment	Topic	Exam Schedule
Jan 22	Chapter 1 Chapter 2	Introduction to Inorganic Chemistry Atomic Structure	
Jan 29	Chapter 2, cont. Chapter 3	Atomic Structure Simple Bonding Theory	
Feb 5	Chapter 4	Symmetry and Group Theory	
Feb 12	Chapter 4, cont. Chapter 5	Symmetry and Group Theory Molecular Orbital Theory	
Feb 19	Chapter 5, cont.	Molecular Orbital Theory	
Feb 26	Chapter 6	Acid-Base and Donor-Acceptor Chemistry	Exam 1 Due
Mar 5	Break		
Mar 12	Chapter 9	Coordination Chemistry: Structures and Isomers	
Mar 19	Chapter 10	Coordination Chemistry: Bonding	
March 26	Chapter 10, cont. Chapter 12	Coordination Chemistry: Bonding Coordination Chemistry: Reactions & Mechanisms	
April 2	Chapter 12	Coordination Chemistry: Reactions & Mechanisms	Literature Exam
April 9	Chapter 13	Organometallic Chemistry	
April 16	Chapter 13, cont.	Organometallic Chemistry	Exam 2 Due
April 23	Chapter 14	Organometallic Reactions and Catalysis	
April 30	Chapter 16	Bioinorganic & Environmental Chemistry	