

CH 612: Advanced Inorganic Chemistry - Structure and Reactivity

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(Office Hours: Fri. 10 am – 1 pm)

Lectures will take place in the Department Conference Room S-1-089

Mondays and Wednesdays 5.30 – 7.00 pm

OFFICE HOURS: Fridays 10 am – 1 pm, or by appointment.

COURSE DESCRIPTION/OBJECTIVES: CH 612 is an advanced inorganic graduate course with a focus on theoretical descriptions of chemical bonding, molecular geometry and physical methods in inorganic chemistry (prerequisite CH 370). As an active participant in this course you will learn about theoretical and physical methods used for the determination, and study of, inorganic electronic structures.

SYLLABUS

(subject to change)

Lectures 1 – 12 : Chemical bonding and molecular geometry

Lectures 13 – 21 : Physical methods in Inorganic Chemistry

Lectures 22 – 24 : Student Presentations

Oral presentations: 20 min plus *ca.* 5 – 10 min for questions.
Presentations will be based upon a single scientific manuscript as chosen by the instructor in advance.

RECOMMENDED READING:

“Molecular Symmetry and Group Theory”
Robert L. Carter (Wiley)

“Chemical Bonding and Molecular Geometry: From Lewis to Electron Densities”
Ronald J. Gillespie and Paul L. A. Popelier (Oxford)

Course content covering physical methods in inorganic chemistry will be derived from the literature. Appropriate references will be supplied prior to the respective lecture.

Journals of Interest:

Inorganic Chemistry
(<http://pubs.acs.org/journal/inocaj>)

Organometallic Chemistry
(<http://pubs.acs.org/journal/orgnd7>)

Journal of Physical Chemistry A, B & C
<http://pubs.acs.org/journal/jpcafh>

Journal of the American Chemical Society
(<http://pubs.acs.org/journal/jacsat>)

European Journal of Inorganic Chemistry
(<http://www3.interscience.wiley.com/journal/27721/home>)

Angewandte Chemie International Edition
(<http://www3.interscience.wiley.com/journal/26737/home>)

Journal of the Chemical Society Dalton Transactions
(<http://www.rsc.org/Publishing/Journals/dt/>)

EXAMS

2 x 1.5 hour in-class exams

1 take home final exam

Dates to be determined.

COURSE GRADING:

Grading will reflect your performance in quizzes/presentations/exams.

(Note: Exam grades may be supplemented by quizzes where appropriate)

- Exam 1: 30 %
- Exam 2: 30 %
- Presentation 15 %
- Final Exam: 25 %

Final grade determination:

≥ 90 %	A
> 86 %	A-
> 82 %	B+
> 78 %	B
> 74 %	B-
> 70 %	C+
> 66 %	C
> 62 %	C-
> 58 %	D+
> 54 %	D
> 50 %	D-
< 50%	F

Academic Integrity

Students are required to adhere to the University Policy on Academic Standards and Cheating, to the University Statement on Plagiarism and the Documentation of Written Work, and to the Code of Student Conduct as delineated in the catalog of Undergraduate Programs, pp. 44-45, and 48-52. The Code is available online at: http://www.umb.edu/student_services/student_rights/code_conduct.html .