

Contemporary Topics in Inorganic Chemistry

CHEM 5369/6369, Fall 2018

MW 4:30pm – 5:50pm, LART 203

INSTRUCTOR: Dr. Skye Fortier
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OFFICE HOURS: By appointment

TEXTBOOK: Organotransition Metal Chemistry: From Bonding to Catalysis
John F. Hartwig

SCOPE: The course will familiarize students with the fundamental chemical principles of organometallic and inorganic chemistry. This is to include a historical perspective of the field, literature reviews, discussion of ligand effects and metal-centered reaction mechanisms, and more. In addition, we will discuss the application of organometallic/inorganic chemistry towards solving modern chemical challenges.

GRADING:

Class Participation	10%
Literature Presentation	20%
Midterm*	20%
Research Proposal and Presentation	50%

RESEARCH PROPOSAL: Students will write a 5-page, single spaced research proposal. In addition, students will present and defend their proposal in a 15-20 min presentation to the class. Proposal topic and guidelines are to follow.

CLASS TOPICS: Topics and their order are tentative and subject to change

- Structure and Bonding in Metals
- Molecular Orbital Theory
- Bonding between Metals and π -Systems
- Dative Interactions
- Mechanisms of Ligand Substitutions
- Oxidative Addition of C-H and C-C Bonds
- Reductive Elimination and Bond Forming Reactions
- Insertion Reactions
- Chemistry of Metal-Ligand Multiple Bonds
- Methane Activation
- Nitrogen Fixation
- Redox Active Ligands in Biology and Chemistry

*The midterm may be forgone depending on literature scheduling and other factors. In this event, the Literature Presentation and Class Participation will be weighted as 30% and 20% of your grade, respectively.