

## CHM 6621: Inorganic Reaction Mechanism & Energetics

Spring 2021      Location: FLI 109      T 1:55–3:50PM      R 3:00–3:50PM

Instructor: Leslie Murray

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Office: CLB 410B

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Office Hours: by appointment

### Course Description and Objective

To provide instruction in the theoretical concepts underlying fundamental and contemporary organometallic chemistry.

### Strongly Recommended Texts

Jordan, Robert B., *Reaction Mechanisms of Inorganic and Organometallic Reactions*, 3<sup>rd</sup> Ed.

Hartwig, John F., *Organotransition Metal Chemistry From Bonding to Catalysis*, 1<sup>st</sup> Ed.

### Useful or Helpful Supplemental Texts

1. Albright, T. A., Burdette, J. K., and Whangbo, M.-H. *Orbital Interactions in Chemistry*, 2<sup>nd</sup> Ed.
2. Rorabacher, D. B. and Endicott, J. F., *Mechanistic Aspects of Inorganic Reactions*
3. Basolo, F. and Pearson, R. G., *Mechanisms of Inorganic Reactions*
4. Langford, C. H. and Gray, H. B., *Ligand Substitution Processes*
5. Wilkins, R. G. *Kinetics and Mechanism of Reactions of Transition Metal Complexes* 2<sup>nd</sup> Ed.
6. Espenson, J. H., *Chemical Kinetics and Reaction Mechanisms*, 2<sup>nd</sup> Ed.

### Grades

Grades will be based on

Course Teaching: 200 points

Participation: 100 points

Mid-Term Exam: 100 points

Final Exam: 100 points

**Total: 500 points**

For information on UF's Grading Policy, see:

<http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html> and

<http://www.isis.ufl.edu/minusgrades.html>

### Exams

Exams cover all lectures and reading assignments. It is the student's responsibility to ask questions if they do not understand lecture or reading materials. Exams will be in-class and held regular class meeting time. Make-up exams will only be provided in the event of an approved absence (e.g., conference attendance) or under extraordinary circumstances (e.g., medical emergencies). See the university guidelines on absence for more information.

### Course Teaching

*Homines, dum docent, discunt* ("While we teach, we learn") - Seneca

For approximately the half of the course, I will review the necessary aspects of structure and bonding to provide a foundation to understand organometallic chemistry. For the remainder, each student will be required to sign up for a teaching period to serve as the instructor for the course (hereafter referred to as a student instructor). For that lecture, the student instructor will be required to prepare lecture notes and any necessary audio/visual aids. Lecture notes must be uploaded to either the course Canvas site or a Dropbox folder (TBD) **at least two days prior to the assigned lecture day**. Student instructors will be graded based on the evaluations by their peers and LJM (50% of the grade assigned by the LJM, 50% as the average of all peer evaluations). The evaluation rubric is provided at the end of this document. LJM is available to provide advice and guidance ranging from understanding of the content to teaching strategies. Be reminded that teaching requires one to field questions that may extend beyond the immediate bounds of the content. As one prepares, one will have to anticipate and prepare for possible questions to be effective.

### Course Participation

This grade is assigned in two parts. First, prior to a student instructor's lecture, all other students in the class are required to read the notes/slides and provide questions or areas in which they might like greater clarification. As an example, one might say for oxidative addition: it seems counterintuitive that oxidative addition is favored by low coordination numbers; isn't the metal more electron deficient than for a higher CN? Comments can be very specific or general to the material in

that lecture. All students are required to provide three comments per lecture. These questions will provide the lecturer with advance notice of points of potential confusion during the lecture. These comments count to 50% of the participation grade, with each set of lecture notes weighted equally. Second, all students are required to submit their feedback with all sections completed of the student instructor within 24h of the lecture delivered. Late submissions will not be accepted. This participation counts for 50% of the participation grade with each evaluation weighted equally.

### **Attendance and Absence Policy**

Attendance will not be recorded and is not explicitly included in student assessment. However, student attendance is required insofar as earning credit for Course Participation necessitates being at lecture.

### **Academic Honesty**

Students are required to be honest in their coursework. Any act of academic dishonesty will be reported to the Dean of Students and may result in failure of the assignment in question and/or the course. For University of Florida's honor code, see <http://www.dso.ufl.edu/sccr/honorcodes/honorcode.php>.

### **Accommodations for Students with Disabilities**

Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation. Contact the Disability Resources Center (<http://www.dso.ufl.edu/drc/>) for information about available resources for students with disabilities.

### **Other Resources: U Matter, We Care**

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

CHEMISTRY 6621

EVALUATION FORM

Student Instructor: \_\_\_\_\_ Topic: \_\_\_\_\_

1. **Presentation:**

- a. Organization and flow (smooth, coherent, etc.):
  
  
  
  
  
  
  
  
  
  
- b. Oral skills (clear, articulate, well spoken, etc.):
  
  
  
  
  
  
  
  
  
  
- c. Visual aids (quality, appropriate use, etc.):
  
  
  
  
  
  
  
  
  
  
- d. Introduction (clear, concise, appropriate for audience, defined research aim and importance, etc.):
  
  
  
  
  
  
  
  
  
  
- e. Discussion period (professional in answering questions, showed understanding of research, etc.):

2. **Overall Evaluation:**      Excellent \_\_      Good \_\_      Average \_\_      Fair \_\_

Comments, advice to speaker (continue on back, if necessary)

Print Name \_\_\_\_\_