

# Syllabus 6376: Organometallic Chemistry

Spring 2024  
5:30-7 pm MW  
154 Fleming

Prof. O. Daugulis  
Office: STL 439, email: olafs@uh.edu

Text: Hartwig "Organotransition Metal Chemistry: From Bonding to Catalysis", 2010.

| <b>Date</b>       | <b>Topic</b>                                     | <b>Reading</b>               |
|-------------------|--|------------------------------|
| Jan 17            | Electron counting                                | Ch 1                         |
| Jan 22, 24        | Ligand exchange                                  | Ch 5                         |
| Jan 29, 31        | Oxidative addition, reductive elimination        | Ch 6, 7, 8                   |
| Feb 5, 7          | Intramolecular insertions/eliminations           | Ch 9                         |
| Feb 12, 14        | Nucleophilic attack on complexed ligands         | Ch 11                        |
| Feb 19            | Electrophilic attack on complexed ligands        | Ch 12                        |
| Feb 21            | Metallacycles                                    | pages 52, 97, 400, 490, 1036 |
| Feb 26            | <b>FIRST HOURLY EXAM</b>                         |                              |
| Feb 28, March 4   | Catalytic processes based on metal carbenes/ynes | Ch 21                        |
| March 6, 18, 20   | Hydrogenation and related processes              | Ch 15, 16, 17                |
| Mar 25, 27, Apr 1 | C-C bond formation                               | Ch 19.1-19.5, 19.7, 19.8.4   |
| Apr 3, 8          | C-X bond formation                               | Ch 19.6, 19.8.1-19.8.3       |
| Apr 10, 15, 17    | Alkene polymerization                            | Ch 17.8, 22                  |
| Apr 22, 24        | C-C and C-H activation                           | Ch 19.9, 18                  |
| April 29          | <b>SECOND HOURLY EXAM</b>                        |                              |
| MAY TBD           | <b>RESEARCH PROPOSAL DEFENSE</b>                 |                              |

## **NOTES**

**1. GRADING:** separate for undergraduate and graduate students.

Undergraduate students: 100 points each exam. Five unannounced quizzes for 10 points each.

Graduate students: 100 points each exam. Five unannounced quizzes for 10 points each. Research proposal: 30 points from peer review (three reviews, if ranked #1, 10 points; ranked #2, 5 points; ranked #3, 0 points); 10 points quality of your reviews; 10 points quality of presentation.

### **NO MAKE-UP EXAMS!**

**2.** Problem sets will be distributed on (almost) weekly basis; will not be collected. Exams and quizzes will have some material from problem sets.

**3.** January 31 – last day to drop class without receiving a grade. April 17 - last day to drop the class with a “W”. March 11-16 – Spring break.

**4.** We will discuss how to prepare the Research Proposal after the first hourly exam. You will need to discuss your idea with me by April 20.

**5.** Office hours – by appointment. Feel free to email me any questions or concerns you have, and I will respond to them within few hours.