

Syllabus – Organometallics in Chemical Synthesis

Course Information

Chemistry 395/425/455 – Organometallics in Chemical Synthesis

Instructor: Chad C. Eichman
Office: 203 Flanner Hall
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Weekly Schedule

Lecture: Thursdays 2:30–5:00pm in 105 Flanner Hall

Office Hours

Wednesday 10–11am and by appointment (to schedule, please email me)

Course Description

This course will cover general principles of organometallic chemistry geared toward organic synthesis. We will discuss the fundamentals of organometallic chemistry, as well as catalysts and reactions for chemical synthesis applications.

Textbook and Additional Course Materials

Textbook: Hegedus, Louis, S. *Transition Metals in the Synthesis of Complex Organic Molecules*

Other Material: Hartwig, J. F. *Organotransition Metal Chemistry, from Bonding to Catalysis*

Crabtree, R. H. *The Organometallic Chemistry of the Transition Metals*

Website: <https://sakai.luc.edu>

Grading

2 Midterm Exams (100 points each)	200	40%
1 Final Exam (150 points)	150	30%
1 Written/Oral Project (150 points)	150	30%
Total	500	100%

Midterm Exams

There are **two** midterm exams during the semester on the dates listed below. The midterm exams cover only lecture topics and will be held during lecture at 2:30-4:30 PM in Flanner Hall 105. EACH EXAM COUNTS.

Midterm Exam Dates: October 3 and November 21.

Final Exam

The final exam will take place **4:15-6:15 PM on Monday, December 16** in a FH-105. *The final exam is cumulative.* All topics discussed during lecture over the semester are on the final.

Project

A detailed description of the project will be provided by on November 7. The project will consist of a written portion and an oral presentation. The oral presentations will take place on December 5 during lecture.

Class Etiquette

Come to class on time.

No cell phones.

No eating.

Problem Sets and Sessions

There will be four problem sets throughout the semester to help you master the course material. In addition, I will hold problem sessions to go through the material and answer any questions. These problem sessions are **optional** and will take place in **FH-129 6:00-8:00pm** on the following Wednesdays: September 18, October 2, October 30, November 20.

Academic Integrity

All students in this course are expected to have read and to abide by the demanding standard of personal honesty, drafted by the College of Arts & Sciences, that can be viewed at:

http://www.luc.edu/cas/pdfs/CAS_Academic_Integrity_Statement_December_07.pdf

Anything you submit that is incorporated as part of your grade in this course (exam, project) must represent your own work. Any students caught cheating will, at the very minimum, receive a grade of "zero" for the item that was submitted and this grade cannot be dropped. If the cheating occurred during a course exam, the incident will be reported to the Chemistry Department Chair and the Office of the CAS Dean. Depending on the seriousness of the incident, additional sanctions may be imposed.

Dropping and Withdrawal

Be aware of the following dates in the semester:

September 3: Last day to withdraw without a "W" grade

September 8: Last day to withdraw with a 100% Bursar credit

September 22: Last day to withdraw with a 50% Bursar credit

September 29: Last day to withdraw with a 20% Bursar credit

November 1: Last day to withdraw with a "W" grade, thereafter a "WF" will be assigned

Email

You must use your Loyola email address for all communication during this course. Emails from outside sources are often blocked automatically.

Changes to Syllabus

There may be changes to the syllabus during the semester. ***You are responsible for all syllabus changes made in class whether or not you attend.***

Course Topics

Basic Organometallic Concepts	π -Allyl Chemistry
Ligand Types	Metathesis
Organometallic Reaction Types	Asymmetric Hydrogenation
Catalysis	Sharpless Epoxidation/Dihydroxylation
The Heck Reaction	Amidation/Amination Coupling Reactions
Cross Coupling Reactions	Asymmetric Transformations
Stille/Suzuki/Negishi/Hiyama/Kumada Couplings	Special Topics

Course/Instructor Evaluation – IDEA

Loyola has recently switched to the IDEA program for instructor and course evaluations. At the end of the semester, you will complete an online evaluation of this course based on criteria set by IDEA and by the instructor. For this course, the main objectives are as follows:

- 1) Gaining factual knowledge (terminology, classifications, methods, trends)
- 2) Learning fundamental principles, generalizations, or theories
- 3) Gaining a broader understanding and appreciation of intellectual/cultural activity

Keep these objectives in mind throughout the course.

FALL 2013 CALENDAR

Week	Monday	Tuesday	Wednesday	Thursday	Friday
1	8/26	8/27	8/28	8/29	8/30
2	9/2 Labor Day	9/3 Last day to drop without a "W"	9/4	9/5	9/6
3	9/9	9/10	9/11	9/12	9/13
4	9/16	9/17	9/18 Problem Session 1	9/19	9/20
5	9/23	9/24	9/25	9/26	9/27
6	9/30	10/1	10/2 Problem Session 2	10/3 EXAM 1	10/4
7	10/7 Fall Break	10/8 Fall Break	10/9	10/10	10/11
8	10/14	10/15	10/16	10/17	10/18
9	10/21	10/22	10/23	10/24	10/25 Mid-semester Alert
10	10/28	10/29	10/30 Problem Session 3	10/31	11/1 Last day to withdraw without WF
11	11/4	11/5	11/6	11/7	11/8
12	11/11	11/12	11/13	11/14	11/15
13	11/18	11/19	11/20 Problem Session 3	11/21 EXAM 2	11/22
14	11/25	11/26	11/27 Thanksgiving	11/28 Thanksgiving	11/29 Thanksgiving
15	12/2	12/3	12/4	12/5 PRESENTATIONS	12/6 Last Day of Classes!!
16	12/9	12/10	12/11	12/12	12/13
17	12/16 FINAL EXAM	12/17	12/18	12/19	12/20