Chemistry 9671R (2020)
Synthesis with Organometallics
Au Catalysis in Synthesis

Target Audience: This is a general topics course intended for a broad synthetic audience and one need not be an expert in organic or inorganic chemistry.

Prerequisites: None. Chemistry 9623 and 9723, Advanced Synthetic Methods I & II, are independent courses and can be taken separately or in any order.

	In Person	**Online**
Class Times:	9:00 – noon; Thursdays, Location TBA	Asynchronous lecture Synchronous participation
Office Hours:	By appointment or stop by My office BGS 2020 excluding noon – 2 pm MWRF	9:00 am by Zoom
Instructor:	Professor Brian L. Pagenkopf, Ph.D. BGS 2020 bpagenko@uwo.ca (start the subject line with 9671)	
Materials:	Links, PDF's and/or notes will be provided.	

Topics

- Review of organic reactions that will be encountered in the course
- Review of relevant organometallic mechanisms
- Gold Catalysis
    - Enyne isomerization/cyclopropanation
    - 1,2 and 1,3-shifts
    - *O* and *N*-based nucleophiles
    - Examples in Total Synthesis

Note, there is no significant overlap with the topics in 9623: (asymmetric): aldols, alkylation, carbonyl addition and chelation control, allylation/crotylation, Diels-Alder, dihydroxylation, epoxidation, hydroboration, reduction/hydrogenation and olefination.

Goals. The goals of this course include fostering a habit of routinely reading the literature, practicing formal public speaking, familiarizing yourself with named reactions, gaining insights into some modern synthetic methods and appreciation for target-oriented synthesis.

Evaluation: The final grade for the course will be determined by the following

Component	Weight
Weekly Abstracts and Presentations	25%
Class Participation	10%
Written Assignments	15%
Formal Presentation	25%
Final Exam (take home)	25%
Total	**100%**

Evaluation Details

Abstracts. You will read 3 articles per week and record abstracts of each article in a notebook (hard cover preferred), and I will sign off on the abstracts weekly. You get to pick the papers you abstract, but they should entail new synthetic methods, at least one with organometallics and one with a natural product focus, all from 2018 or newer. I will also pick one of your abstracts that interests me and you will give a brief chalk board presentation on that publication with minimally referring to the original paper (but that is permissible but discouraged). The goal of the abstracts is to promote reading of the current literature and to record notes on what you read. The hope is that recording your own abstracts becomes a permanent habit for you throughout your professional career. If you already maintain such practices you can use the same notebook. Electronic versions will only be given approval for stylus supported tablets under special conditions (see me). Depending on your notebook, with standard 8 x11 paper 2 or 3 abstracts can fit on a page. Include a title (not necessarily the title of the paper), the literature citation (or DOI if not yet assigned), corresponding author, university/location, a graphic, and key points.

Class participation includes attendance, attentiveness, and asking/answering questions in class about lecture and student presentations, including abstracts.

There will be at least two short *written assignments*, two pages or less. These can be in the colloquial style of *ACIE* highlights.

At the end of the course you will give a short (~30 min) *Formal Presentation* on a topic of your choosing from the recent literature. The articles should support a theme or concept, sort of like a "Highlight" in *Angewandte Chemie*. All students are expected to ask at least one question at the end of each presentation as part of class *participation*.

At the end of the course will be an open book take home *exam* based partially on the lecture material. The restriction is that you need to work on it individually, and you'll have at least 3 days to finish it (not that it should take that long). The idea of this assignment is to review select course content, without requiring you study everything in advance like you'd have to for a regular final exam.

Other Statements

Medical / Compassionate Excuses: Policies on missed lectures or assignments are described here: https://studentservices.uwo.ca/secure/index.cfm

Student Accessibility Services (SAS): Western is committed to achieving barrier-free accessibility for all its members, including graduate students. As part of this commitment, Western provides a variety of services devoted to promoting, advocating, and accommodating persons with disabilities in their respective graduate program. Graduate students with disabilities (for example, chronic illnesses, mental health conditions, mobility impairments) are encouraged to register with Student Accessibility Services, a confidential service designed to support graduate and undergraduate students through their academic program. With the appropriate documentation, the student will work with both SAS and their graduate programs (normally their Graduate Chair and/or Course instructor) to ensure that appropriate academic accommodations to program requirements are arranged. These accommodations include individual counselling, alternative formatted literature, accessible campus transportation, learning strategy instruction, writing exams and assistive technology instruction. For more information, see http://www.sdc.uwo.ca/ssd/

Academic Offences: Scholastic offences are taken seriously, and students are directed to read the relevant policies: https://grad.uwo.ca/administration/regulations/13.html

Plagiarism: All written assignments may be submitted for similarity review and plagiarism detection with http://www.turnitin.com.

Support Services: Support is available from the Registrar: http://www.registrar.uwo.ca, via the University Students Council (http://westernusc.ca/services/) and at Student Development Services (http://www.sdc.uwo.ca/).

Mental or Emotional Health: Students who are in emotional/mental distress should refer to Mental Health@Western http://www.uwo.ca/uwocom/mentalhealth/ for a complete list of options about how to obtain help.