

## Catalysis

Chemistry 9521, Winter 2024  
The University of Western Ontario

### **Enrollment:**

To be capped at 20 students

### **Description:**

Homogeneous catalysis is commonly employed in organic synthesis as an efficient and selective method to generate high-value products. New catalytic systems are continually being reported for known and new reactions. How is one to identify what is the best catalyst? How would you go about designing a better system? We will tackle these questions by identifying suitable methods for catalyst comparison. Methods and techniques to elucidate catalyst performance (activity and selectivity) and mechanism will be covered. Examples will be taken from the literature focusing on current and useful catalytic transformations.

### **Topics:**

- Fundamental principles of catalysis
- Challenges inherent in comparing catalytic systems
- Methods to assess catalytic performance
- Techniques for mechanistic analysis

### **Resources:**

There is no required text for this course, however useful resources and references will be discussed in class. Course content will rely heavily on literature material.

### **Lectures / seminars:**

Day/s: TBD

Time/s: TBD (2 × 1.5 hours/week)

Mode of instruction: In-person

### **Evaluation**

- Assignments (50%)
  - Two assigned through the 6 weeks. Each worth 25%
- Presentation (35%)
  - Each student will give a 15-20 min presentation

- Participation (15%)
  - In class discussion will be an important component of this class. Effective preparation (Advance reading of assigned resources and contemplation of discussion questions) will be essential for fruitful and engaging discussion.

### **Course attendance and missed/late assignments**

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to your instructor immediately. It is the student's responsibility to make alternative arrangements with their instructor once the Academic Consideration has been approved and the instructor has been informed.

### **Notes on Academic Honesty**

Scholastic offences are taken seriously, and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

[www.uwo.ca/univsec/pdf/academic\\_policies/appeals/scholastic\\_discipline\\_grad.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_grad.pdf)

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

### **Health and Wellness**

As part of a successful graduate student experience at Western, we encourage students to make their health and wellness a priority. Western provides several on campus health-related services to help you achieve optimum health and engage in healthy living while pursuing your graduate degree. For example, to support physical activity, all students, as part of their registration, receive membership in Western's Campus Recreation Centre.

Numerous cultural events are offered throughout the year. For example, please check out the Faculty of Music web page <http://www.music.uwo.ca/>, and our own McIntosh Gallery <http://www.mcintoshgallery.ca/>. Information regarding health- and wellness-related services available to students may be found at <http://www.health.uwo.ca/>. Students seeking help regarding mental health concerns are advised to speak to someone they feel comfortable confiding in, such as their faculty supervisor, their program director (graduate chair), or other relevant administrators in their unit. Campus mental health resources may be found at [http://www.health.uwo.ca/mental\\_health/resources.html](http://www.health.uwo.ca/mental_health/resources.html).

**Use of Electronic Devices**

Please turn your cell phones to silent and refrain from answering them during class.  
Use of a laptop or tablet to take notes is permitted.