

## **CHEM 6090                      Solid State, Nano and Materials Chemistry**

*previously offered as Chem 5610 Recent Advances in Chemistry (2016W, 2017W)*

Course Director: Jennifer Chen

Lecture: Tuesday 10:30am – 1:30pm, BRG 211

E-mail: [jilchen@yorku.ca](mailto:jilchen@yorku.ca) (please put Chem 6090 in subject line)

Office: CB456

Course website: [www.moodle.yorku.ca](http://www.moodle.yorku.ca)

### **Course Description.**

This course surveys recent developments in chemistry with an emphasis on the chemistry of materials and their physical properties and characterizations. Topics include solid state chemistry (synthesis and fundamentals), colloids and nanocrystals, self-assembly and surface patterning for hierarchical organization, characterization techniques and the application of materials in various fields. Case studies from literature will be discussed.

### **Recommended texts and references:**

Basic Solid State Chemistry – A. R. West

Nanochemistry: a chemical approach to nanomaterials – G. A. Ozin

Sol-gel science: the physics and chemistry of sol-gel processing – Brinker

### **Evaluation (tentative):**

In-class pop quizzes<sup>1</sup> – 10%

Participation – 5%

Midterm exam – 25%

First assignment\* – 20%

First presentation\* – 20%

Second presentation<sup>x</sup> – 20%

<sup>1</sup>Short pop quizzes (10 min) will not be announced. Missed quizzes will not be rescheduled and will count as zero unless an acceptable reason or documentation is provided.

\*Assignment and presentation 1 – on a topic of your choice (from the list provided), write a review article and give a teaching-style seminar (~45 min)

<sup>x</sup>Presentation 2 – on a topic *not closely related* to your own research (with a materials flavour), give a 5-minute presentation on an original research proposal

### **Tentative Schedule:**

Classes: Jan. 10 – Apr. 4

Reading week: Feb. 18-24

Midterm exam: Feb. 28

Seminar presentation: Mar. 7 – Mar. 28 (assignment due Mar. 28)

Proposal presentation: Apr. 4

### **Important Information for All Students:**

All students are expected to familiarize themselves with the following information, at [www.yorku.ca/secretariat/policies/index-policies.html](http://www.yorku.ca/secretariat/policies/index-policies.html).

- York's Academic Honesty Policy
- Policy on Accommodation for Students with Disabilities
- Code of Student Rights and Responsibilities

- Policy on Religious Observance Accommodation