

# Physical Inorganic Chemistry Course Syllabus

Winter 2023, Chem 3031

**Course Instructor:** Jennifer Chen

**How to address me:** Professor or Dr. Chen

**Personal Pronouns:** (she/her/hers)

**Email:** [jlchen@yorku.ca](mailto:jlchen@yorku.ca)

Note: If you have a question or would like to talk with me, you can send an email to make an appointment (on zoom or in-person). For in-person close interactions, please wear a mask.

**Appointment times:** see Calendly link on eClass

**Class Times:** MWF, 12:30 pm – 1:20 pm

**Class Location:** CB 129

**Course Format:** in-person lectures. Lectures will be recorded and posted on eClass; however recording should not be treated as the primary mode of learning because of unexpected technical issues

**Prerequisites:** CHEM 3030

**Office Location:** CB 456

**Course Description.** This course builds on materials presented in Chem 2030 and Chem 3030 and is divided into three major areas. The first part of the course deals with spectroscopies for structural determination of inorganic compounds. The second part of the course examines the theories for describing the bonding and properties of inorganic compounds. The third part of the course introduces 1D and solid state materials, with emphases on their electronic properties and technological applications.

**Course Objectives.** At the end of this course students will have an appreciation for the theory and physical characterization techniques for inorganic compounds and solid state materials. Students will also be exposed to the application of these compounds in relation to real world and industrial processes.

## Recommended texts and references (in Steacie Reserve):

Inorganic Spectroscopic Methods (Oxford chemistry primer) - A. Brisdon  
Miessler and Tarr Inorganic Chemistry  
Housecroft and Sharpe Inorganic Chemistry  
Solid State Chemistry An Introduction – Smart and Moore  
Basic Solid State Chemistry – A. R. West  
Chemical Applications of Group Theory – A. Cotton  
Understanding Inorganic Chemistry– J. Barrett  
The Electronic Structure and Chemistry of Solids – P. A. Cox

**Evaluation:** Quizzes<sup>1</sup> and in-class activities<sup>2</sup> – 25% total  
2 Midterm tests – 20% each\*  
Written assignment – 15%  
Final exam – 20%<sup>3\*</sup>

<sup>1</sup>Quizzes (~4-5) based on problem sets will be on eClass. <sup>2</sup>In-class participation (may use clicker) will count as one quiz. The lowest grade of a quiz will be dropped. Missed quizzes will not be rescheduled and will count as zero.

<sup>3</sup>Final exam will focus on the second part of the course (not cumulative unless a midterm was missed, see course policies below).

Missed midterm test will not be rescheduled and the weight will be added to the final exam, which would contain additional sections corresponding to the first part of the course.

\*Alternative marking scheme: 1 midterm test at 20% and the final exam at 40% where an additional section corresponding to the first part of the course is to be completed; the other evaluations remain the same (quizzes – 25%, written assignment – 15%)

## Tentative Schedule:

Midterm tests: Feb. 15, Mar. 22

Written assignment: Mar. 31

Final exam period: Apr. 12 – Apr. 27 (must stay for the whole period)

## Course policies:

### 1. Email etiquette:

- **You must use your YorkU email address and put “Chem 3031” in the subject line.** Emails not conforming to the rules may go into the spam folder and will not receive a response.
- As a courtesy and being respectful to your correspondent, write your email professionally (i.e. text-messaging language is unacceptable). Questions regarding calculations or involving equations should be avoided and are best discussed in person during office hour.

### 2. Missed exam:

- **If you miss a midterm**, no document is required. The weight of the missed midterm will be added to the final exam automatically. There will be an additional part of the final exam to be completed within the same duration.
- **If you miss both midterms**, you will be required to write a make-up test for 20% of your mark. The other missed midterm will be added to the final exam (as above)
- Deferred standing for final exam is rarely granted and petition to your home faculty will be required. A two-day notice will be given for the makeup final exam. Denied petitions will result in a zero on the final exam. See <http://www.registrar.yorku.ca/petitions/academic/for> information.

### 3. Re-grading of course work:

- If you believe a written answer on a test was marked incorrectly, you must resubmit it to me detailing your rationale within 5 business days of the return of the test. For tests done in person, **ONLY** those answers written in ink are eligible for re-marking. NOTE: re-marking can result in the mark being raised, confirmed, or lowered.

### 4. Academic Honesty

- **Any student who breaches York's Academic Honesty Policy will be charged.** Some offences include:
  - Plagiarism (see White Paper - Plagiarism Spectrum on Moodle)
  - Students who misrepresent themselves during iClicker activity, a quiz or examination
  - Students who engage in unauthorized collaboration (e.g. sharing work or answer for on-line quiz)
  - Students who submit any material for remarking that has been modified in any manner to misrepresent the original assessment

## Important Information for All Students:

All students are expected to familiarize themselves with the following information, at <http://secretariat-policies.info.yorku.ca/>.

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