

# **CHEM 1020: General Chemistry IB**

**Spring 2020/21**

# Course Instructors

## Prof. Emily M.W. Tsang

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□ E-mail: [chetsang@ust.hk](mailto:chetsang@ust.hk)

**Lectures: Feb 1 – Feb 24**

*\*Maternity Leave from March - June*



## Prof. Jonathan Halpert

□ Office: **Rm 4545 (Lift 25/26)**

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**Lectures: Mar 1 – Mar 29**



## Prof. Jinqing Huang

□ Office: **Rm 4544 (Lift 25/26)**

□ E-mail: [jqhuang@ust.hk](mailto:jquang@ust.hk)

**Lectures: Apr 7 – May 5**



# Instructional Assistant (IA)

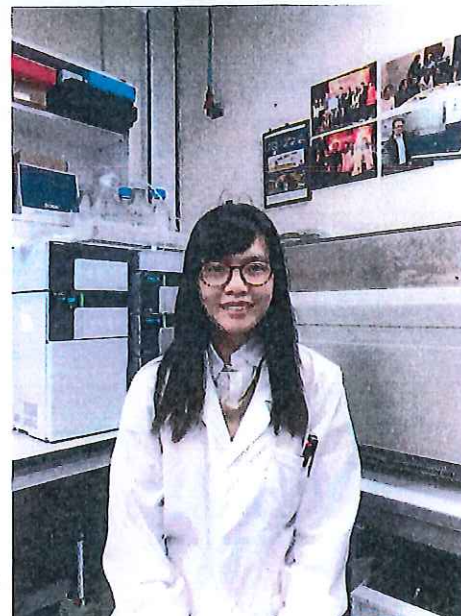
## Miss Elaine YL Wong

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- E-mail: [wylelaine@ust.hk](mailto:wylelaine@ust.hk)
- Office Tel: **2358 7243**

### Two Tutorial Sessions instructed by IA:

- One before Midterm Exam
- One before Final Exam

The exact date and time for these tutorials will be announced in due course



# Course Description and Pre-requisite

- Lectures: 9:00 – 10:20 am, Every Monday and Wednesday
- Venue: Interactive Online Lecture by Zoom Meeting, access through CANVAS

Meeting ID: **914-1460-4914**  
Password: chem1020

Canvas LMS interface for CHEM1020 (L1) - General Chemistry IB. The Zoom Meeting link is circled in red. A yellow box highlights the Meeting ID: 914-1460-4914 and Password: chem1020. The Zoom interface shows a list of upcoming meetings with the 'Join' button circled in red.

Start Time	Topic	Meeting ID	Join	Invitation
Mon, Feb 1 (Recurring) 9:00 AM	CHEM1020 (L1) - General Chemistry IB (pwd: chem1020)	914 1460 4914	Join	Invitation
Wed, Feb 3 (Recurring) 9:00 AM	CHEM1020 (L1) - General Chemistry IB (pwd: chem1020)	914 1460 4914	Join	Invitation
Mon, Feb 8 (Recurring) 9:00 AM	CHEM1020 (L1) - General Chemistry IB (pwd: chem1020)	914 1460 4914	Join	Invitation
Wed, Feb 10 (Recurring) 9:00 AM	CHEM1020 (L1) - General Chemistry IB (pwd: chem1020)	914 1460 4914	Join	Invitation
Wed, Feb 17 (Recurring) 9:00 AM	CHEM1020 (L1) - General Chemistry IB (pwd: chem1020)	914 1460 4914	Join	Invitation

## Course Description and Pre-requisite

### Pre-requisites:

- HKDSE 1.0x Chemistry
- Or equivalent (Mainland JEE, Taiwan GSAT, IB Chem HL, SAT Chem, College Board AP, etc)



## Course Description and Pre-requisite

### □ Course Description:

This course targets students who have acquired more advanced knowledge in fundamental Chemistry in high school and is **Part I** of a **two-semester course** "General Chemistry".

**[Part II (CHEM 1030) is offered every Spring term]**

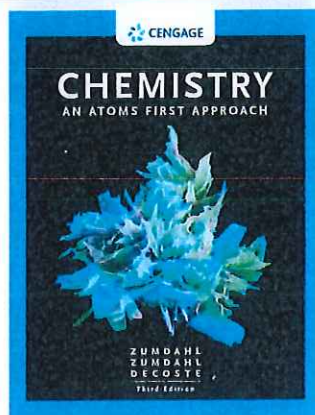
□ **Key Topics:** *atoms, atomic structures, chemical bonds, molecules, molecular structures, substances, chemical kinetics, energy*

□ **Supplementary Lab Course:** **CHEM 1050** [0-0-3:**1**]

# Course Outline and Textbook

- Chapter 1: Chemical Foundations
- Chapter 2\*: Atomic Structure and Periodicity
- Chapter 3: Bonding - General Concepts
- Chapter 4\*: Molecular Structure and Orbitals
- Chapter 5: Stoichiometry
- Chapter 6: Types of Chemical Reactions and Solution Stoichiometry
- Chapter 7: Chemical Energy
- Chapter 8: Gases

\*Key Chapters!!!



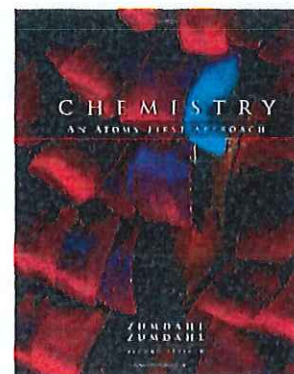
*Chemistry: An Atoms First Approach,  
3<sup>rd</sup> Edition (Asian Edition)*

S.S. Zumdahl; S. A. Zumdahl; D. DeCoste

© Cengage Learning

ISBN: 9789814896993 (**Hardcopy Textbook, \$423.7**)

ISBN: 9780357560938 (**e-Book, \$330**)



*(The 2<sup>nd</sup> Edition textbook  
can also be used.)*

E-book ordering link: [https://w5.ab.ust.hk/cgi-bin/std CGI.sh/WService=broker\\_ba\\_p/prg/ba\\_std main.r](https://w5.ab.ust.hk/cgi-bin/std CGI.sh/WService=broker_ba_p/prg/ba_std main.r)

# Course Grading

- |   |     |
|---|-----|
| □ Midterm Exam (Tentative Time: Week 9) | 50% |
| □ Final Exam                            | 50% |

## NOTE:

- exams **cannot** be waived under any circumstances
- ***Exam questions will be similar to:***
  - ***End-of-chapter exercises.***



# How to do well in this Course?

- **Attend Lectures**
- **Pre-read, Read, and Review** textbooks & lecture notes
- **Do the Recommended End-of-Chapter Exercises**
  - ▣ **Hint:** *exam questions will be similar to these!!!*
- **Email instructor for course help**

# Lecture Notes and Lecture Videos

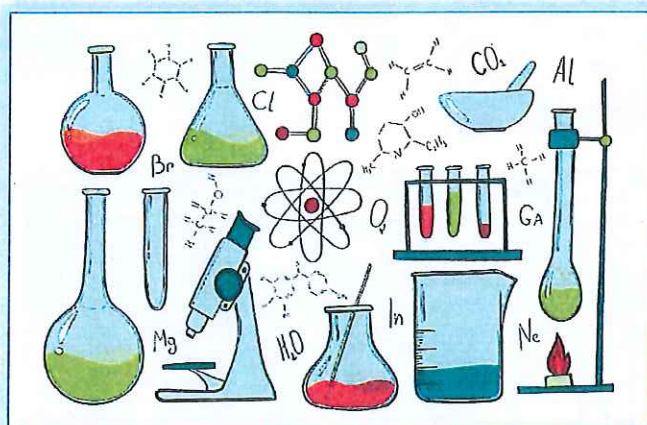
□ Lecture Notes and Lecture Videos are posted on **CANVAS** system:

□ <http://canvas.ust.hk>

□ Login: ITSC username and password

# Course Objectives

- **Chemistry** is a science that studies **composition**, **structure**, **properties**, and the **changes (reactions)** of matter.

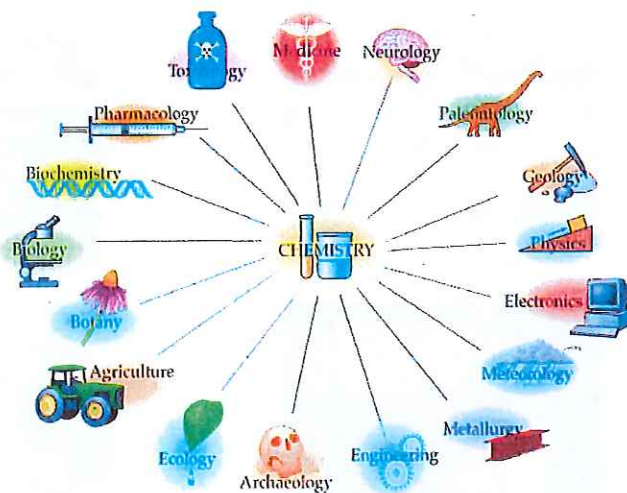


# Chemistry in our Daily Life

We encounter and use chemicals every days.



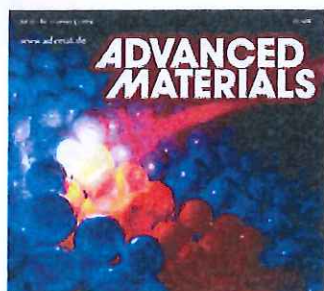
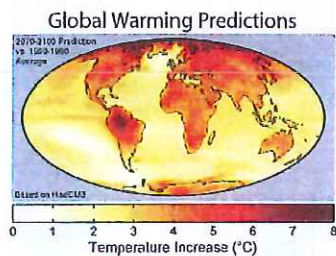
# Chemistry: Its Central Role



**Chemistry is a central science. It is related to many modern technologies and industries.**



# Chemistry and Future



# Intended Learning Outcomes

*At the end of this course, you will be able to:*

1. Describe and apply **fundamental principles and terminologies of chemistry**.
2. Develop a **microscopic view** of the world in terms of **atoms** and **molecules** and their change
3. Describe and apply concepts of mass conservation and energy conservation in **chemical changes**.
4. Describe the atoms and ions in terms of **atomic structure, atomic orbitals, electron configuration, and periodicity of chemical properties**
5. Describe **molecules** in terms of **bonding theory, energy, molecular geometry and interactions**.
6. Describe a chemical reaction from a **thermodynamic** point of views.
7. Describe the **physical states and properties of gases**
8. Recognize and appreciate the **impact of chemistry to our society**.