Fall 2017 **CHM 135 - Chemistry: Physical Principles**

LECTURERS

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LECTURER OFFICE HOURS Mondays 1-2 pm in LM 155 and Tuesdays 10-11 am in LM 157

LAB INSTRUCTORS

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LAB OFFICE HOURS : (LM 108)
Tues - Fri 3-4pm
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Welcome to CHM135H – *Chemistry: Physical Principles*! This outline is designed to provide you with information about the course and our expectations from you.

The two chemistry courses CHM 135H and 136H are designed to jointly provide a general introduction to chemistry for students who intend to follow a science program, primarily in the Life or Health Sciences. They are also the recommended courses for those applying for entry into professional programs. CHM 135H and 136H are also acceptable in the Chemistry specialist program. CHM 135H and CHM 136H will prepare you well for other chemistry courses in later years. If these are to be your only courses in chemistry, we trust you will have gained some understanding of the breadth of the subject and of its importance in a wide variety of other areas of science.

CLASS LECTURE TIMES				
	L0101	Monday, Wednesday and Friday	noon – 1 pm	ES 1050
	L0201	Tuesday, Thursday and Friday	9 – 10 am	MS 2158

COURSE OVERVIEW

CHM135H will cover the physical principles important in chemistry:
High school review can be found in Chapters 1-4

UNIT 1. Quantum nature of the atom. **CHAPTER 5.**
UNIT 2. States of matter: gases, liquids and solids; solutions. **CHAPTERS 8.5, 8.6, 10, 11, 12.**
UNIT 3. Kinetics: rates of chemical reactions and mechanism. **CHAPTER 13.**
UNIT 4. Principles of equilibrium; acid/base behaviour and buffers; solubilty. **CHAPTERS 14, 15, 16.**
UNIT 5. Thermodynamics: enthalpy, entropy, free energy; laws of thermodynamics. **CHAPTERS 9, 17.**
UNIT 6. Electrochemistry: redox reactions; electrochemical cells; cell potential. **CHAPTER 18.**

REQUIRED TEXTBOOK

The required course textbook is "Chemistry", 7th Edition by McMurry, Fay and Robinson (Prentice Hall, 2015). There is also a supplement to this text, "Solutions Manual", which contains solutions to select questions found in the main text.. The textbook and solutions manual can be purchased at the University of Toronto Textbook Store (214 College Street) either together or separately.

LECTURES

Brief course lecture notes will be available on the CHM 135H course website on Blackboard ahead of each class. Because these notes do not represent all of the concepts discussed in lecture, you should attend all CHM135H classes since it is here that fundamental course content will be presented and elucidated. Many of the problems will be done on the projector and do not appear in the notes. Be prepared to make notes in lecture on the material discussed as this is a key component of active learning.

TUTORIALS

You chose a weekly tutorial time on ROSI when you enrolled in CHM 135H. On the basis of your time selection, you will be assigned to a tutorial group by the Department of Chemistry. Tutorials begin the week of Sept. 18th . By this date, a tutorial session schedule will be posted on the CHM135 course website under "My Grades" to inform you of your assigned tutorial group number and your tutorial classroom location. The goals of the tutorials are:

· to review the lecture material;

· to examine important concepts through problem-solving and enquiry;

· to discuss related concepts and examine their consequences.

To help you to assess and improve your understanding of the course material, assigned questions from the course textbook will be posted weekly on the course website for you to work through. Complete these questions before your next weekly tutorial class. At that class, your teaching assistant (TA) will discuss any questions that you may have concerning the assigned exercises and assist you in understanding the important concepts of the course material.

Chemistry is an area of study that relies on problem-solving. In order to learn chemistry and be successful on the term tests and exam, you need to **practice**. Since students have different backgrounds and abilities, different students will require more or less practice. Remember that you are the best judge of your own learning (provided you are honest with yourself). Do as many or as few questions as you feel are necessary to get an in-depth understanding of the concepts!

To provide feedback about your progress in the course, 10-minute quizzes will be given throughout the term according to the timetable provided below. Quizzes are meant to serve as a gauge of your knowledge of the important concepts in the course; we also hope that they will encourage you to get into the habit of studying the course material regularly.

QUIZ SCHEDULE

Quiz 1 (on Unit 1): Sept. 26-29 **Quiz 4 (on Unit 4): Nov. 14-17**

Quiz 2 (on Unit 2): Oct. 10-13 **Quiz 5 (on Unit 5): Nov. 28 – Dec. 1**

Quiz 3 (on Unit 3): Oct. 24-27 **(No Quiz on Unit 6)**

Your best four of five quizzes will count towards the quiz component of your final grade. Note: there are no make-ups for missed quizzes.

LABORATORIES

Every CHM 135H student has also enrolled in a laboratory section through ROSI. There are no labs the first week of classes:

· Practical Section numbers that end in '**1**' (e.g P0201) will begin during the week of **September 18**.

· Practical Section numbers that end in '**2**' (e.g P0202) will begin during the week of **September 25**.

Note that beginning **September 7th** , Practical Section additions or changes can be made only at the Chemistry Department. To request Practical Section additions or changes, you should contact Dr. Chulliparambil, the course administrator, during office hours.

On the day of your first scheduled laboratory class, consult the CHM135 course website under "My Grades" to see the lab room, equipment locker, bench space or work-station and the lab demonstrator group to which you have been assigned. Please make a note of this information.

Each student will require a CHM 135H Laboratory Manual to complete the laboratory component of the course. **Detailed information regarding all lab policies, including preparation, late penalties, lab schedule are in the manual.** It is available from the Chemistry Club office, located in LM 203; a schedule of their sales hours is posted in Lash Miller Labs as well as on the CHM 135H course website. You will also require a lab coat, indirectly-vented safety goggles, gloves and a lab notebook for your first laboratory class. If you do not already have them, these materials may also be purchased from the Chemistry Club office.

In advance of your first scheduled laboratory class, you should:

- read the "Policy Regarding Laboratory Academic Discipline" on page P-1 of the Laboratory Manual
- consult your Laboratory Manual for information on how to prepare for your first lab class. Note that the Laboratory Schedule of experimental work and assignment due dates is located inside the front cover of the manual. **If you do not adequately prepare for the experiments, including the first one, you will not be allowed to stay in the lab and will receive zero for that experiment.**

The experiments were chosen to reflect many of the topics that are covered in the course so that you can see how the things we discuss in lectures are related to things actually observed and to teach laboratory techniques that will be useful in many areas of science. All experiments are designed to allow you to complete data collection in one three-hour laboratory class. Pre-lab preparation is required and lab reports are submitted after the experiment has been completed. To enjoy the lab, good preparation and time management are essential. We hope that you will find the CHM 135 H Laboratories an enjoyable learning experience.

GETTING ASSISTANCE

The course lecturers have set aside specific times when they are available to discuss the course material with you. Their "office hours" will be posted on the course website. During the term, as term tests and the final exam approach, extra-help sessions will also be available. In addition, it is possible to make an appointment and to ask questions before and after class.

Dr. Chulliparambil, the course administrator, also has office hours when she is available to discuss non-academic problems pertaining to labs, tutorials, scheduling and grading issues with you. Her office hours also will be posted on the course website and outside LM102. If you have any questions concerning the lab (lab organization, lab section addition or changes, etc.), please contact Dr. Chulliparambil during her office hours.

General course enquiries should be sent to the email address **kquinlan@chem.utoronto.ca.** When you e-mail your instructor, please remember to:

1. include your full name and student number and identify yourself as a CHM135 student, making sure to sure your UTORID email address;
2. use common sense and courtesy in constructing your email, keeping the language and tone of your email appropriately professional;
3. use proper sentences to help ensure that your email content is unambiguous;

Most email will receive a reply within 24 hours of being sent (except on weekends) but keep expectations reasonable as to the degree of detail that an email reply to your enquiry can realistically provide. Please keep in mind that email is not the mechanism to receive explanations of lecture material. Answers to such questions should be obtained at your tutorials and instructor's office hours.

ABSENCE

If you miss a test or a significant period of course work through illness or a related reason, first complete the Absence Declaration Form found on ROSI. In order to receive consideration for the missed work, a printout of this absence declaration form, along with a completed University of Toronto Medical Certificate (at http://www.illnessverification.utoronto.ca) must then be submitted to the Course Administrator within one week of the date of absence. Only serious illness (or equivalent reasons) will be accepted as justification for absence (note: University of Toronto Verification of Student Illness and Injury Form, filled out by your doctor, stating that you saw him/her on a given day is not adequate. Your doctor must certify that *you were too sick to attend the test*, etc.). The procedure we will follow for the piece of term work that you have missed will be explained to you after the certificate is received; no make-up tests can be offered. For more information regarding missed term work, consult the 2017 – 2018 Arts and Science Calendar. If you miss a lab, please follow the procedure outlined in the CHM 135H Laboratory Manual page G-8.

ACCESSIBILITY NEEDS

The University of Toronto is committed to accessibility. If you require accommodations for a disability, or have any accessibility concerns about the course, the classroom or course materials, please contact Accessibility Services as soon as possible:

http://www.studentlife.utoronto.ca/as

TEST AND EXAM SCHEDULE

Two term tests will be held according to the schedule below. The test dates may be changed. Any change in the schedule will be announced in the lectures, posted outside LM102 and on the CHM 135H course web site. The final examination will cover the entire course.

Term Test 1: Thursday, Oct. 19th : 18:10 – 19:40

Term Test 2: Thursday, Nov. 23rd : 18:10 – 19:40

Final Exam: To be scheduled during the examination period, December 9-20, 2017

The actual date of the exam will be set by the Faculty of Arts & Science and could occur on the last date mentioned.

MARKING SCHEME

	A		B
Laboratory	20%		20%
Tutorial quizzes	5%		5%
Two term tests	40%	**or**	25%
Final examination	35%		50%
Final mark	**100%**		**100%**

All assigned marks will be scaled to fit into this scheme.

PLAGIARISM

Plagiarism, in any form, will not be tolerated in CHM 135. Please refer to the Department of Chemistry's policy on plagiarism at http://www.chem.utoronto.ca/undergraduate/plagiarism.htmfor more information. Plagiarism is a serious academic offence and it's important that you are aware as to what activities constitute plagiarism! You can learn more about this at the website of the Office of Student Academic Integrity: http://www.artsci.utoronto.ca/osai/ .

COURSE WEBSITE

The course website will serve as a primary source for much of the information upon which you need to remain up-to-date. The course lecture notes, tutorial assignments, test information and other course material will be posted frequently on the website as the course progresses. Visit the course website on a regular basis!

Like many other courses, CHM 135H uses the Blackboard LMS for its course website. To access the CHM135 website, or other Blackboard-based course websites, go to the UofT portal at

http://portal.utoronto.ca/

Click the "log-in to the portal" icon and login using your UTORid and password. Once you have logged in, you'll see the link to the CHM135 course website as well as the link to any of your other course websites which use the Blackboard system.

If you have not yet activated your UTORid account, please do so by going to the UTORid website, www.utorid.utoronto.ca, clicking on "Activate your UTORid" and following the instructions. During

this process, you will find reference to a "Secret Activation Key". This was originally issued to you when you picked up your T-card at the library. If you have lost your "Secret Activation Key" you can call 978-HELP or visit the help desk at the Information Commons on the ground floor of Robarts library to be issued a new one.

ANNOUNCEMENTS

Official announcements regarding test locations, material covered for each test and other important announcements will be posted on the wall outside LM 102 and also on the CHM 135H course website. It is your responsibility to check these postings regularly for important announcements.