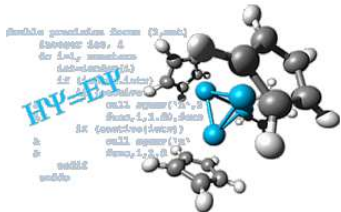


## CHEM 260 – Advanced Physical Chemistry (3 Credits)



**Modality:** Remote

**Meeting Pattern:** 9:40 - 10:30 am MWF

**Lecturer:** Professor Jianing Li

**Office Hour:** 10:30 - 11:20 am MWF

### *Course Description*

CHEM260 is the second semester of the year-long course in physical chemistry. While the first semester covers all aspects of physical chemistry (quantum mechanics, thermodynamics, and kinetics), CHEM260 covers advanced topics mainly in quantum chemistry and statistical thermodynamics, in the depth of treatment takes off where CHEM165 ends.

The general objective is for students to understand the underlying theory of many facts and rules introduced in prior chemistry courses, and to prepare for the future advanced courses in the chemistry curriculum. After completing this course, the students will be able to understand the advanced theory and concepts in physical chemistry, and to build the connections between molecular structures/behaviors and macroscopic properties.

### *Blackboard and MS Teams*

We will use MS Teams for remote lectures and office hours (the meeting function) and in-class discussions (the chat function). For lectures, it will be generally better for the bandwidth if students mute the mic/video. Students can type the short questions in the chat box, or ask the long/complicated questions with the mic on. There will be NO official recording of the lectures in MS Teams. All the course materials will be available in Blackboard.

**Technical support for students:** Students, please read this technology check list to make sure you are ready for classes. <https://www.uvm.edu/it/kb/student-technology-resources/>

Students should contact the Helpline (802-656-2604) for support with technical issues.

### *Required Course Materials*

- *Physical Chemistry for the Chemical Sciences*, by Raymond Chang and John W. Thomas, JR

### *Lecture Topics*

Week	Topic	Week	Topic
1	Review of Basic Physical Chemistry	6-9	Statistical Thermodynamics
2-4	Electronic Structure of Molecules	9-12	Electrolyte & Nonelectrolyte Solutions (Optional)
4-6	Electronic Spectroscopy	12-13	Solid & Liquid States (Optional)
6	Intermolecular Forces (Optional)	13-14	Course Review (Optional)

Note: This table provides you an approximate course structure and topics.

*Grading Criteria/Policies*

All the quizzes and exams will be open-book and should be taken in Blackboard during the scheduled class or exam time. The quizzes will contain multiple choice questions, while the exams will be a mixture of multiple choice and short answer questions. Additional exam questions will be required for graduate students. NO makeup quizzes or exams unless with justified medical reasons.

- **Pop-up quizzes** (15%, in class)
- **Two midterm exams** (50%, in class, Oct. 09, Nov. 13, 9:30-11 am)
- **One final exam** (35%, To be scheduled by the Office of the Registrar)

*Attendance Policy and Classroom Environment Expectations*

The [UVM attendance policy](#) outlines expectations for attendance. Despite no tracking of attendance and participation, students will have the best learning experience when attending all the classes. Also, absence without a justified medical reason will likely result in missing of the pop-up quiz (see the grading policy).

*Attendance and illness/isolation/quarantine*

If the student needs to isolate or quarantine, Student Health Services will inform the Dean's office. I can then contact the dean's office for confirmation that a student is in quarantine or isolation. We offer flexibility for these instances where possible, and the student should contact the lecturer (Prof. Li) to make arrangements to discuss missed work. Students, especially those who are asymptomatic in quarantine, are expected to continue their academic work.

*Research and Citation Help*

For help selecting research topics, finding information, citing sources, and more, ask a librarian. Although we're working remotely, we're eager to help. You may ask questions by phone, e-mail, chat, or text, or make an appointment for an individual consultation with a librarian.

Howe Library: <https://library.uvm.edu/askhowe>

Dana Medical Library: <https://dana.uvm.edu/help/ask>

Silver Special Collections Library: <https://specialcollections.uvm.edu/help/ask>

*COVID19 Policy*

**General statement regarding potential changes during the semester:** <http://catalogue.uvm.edu/>

The University of Vermont reserves the right to make changes in the course offerings, mode of delivery, degree requirements, charges, regulations, and procedures contained herein as educational, financial, and health, safety, and welfare considerations require, or as necessary to be compliant with governmental, accreditation, or public health directives.

**Green and Gold Promise:** The [Green and Gold Promise](#) clearly articulates the expectations that UVM has for students, faculty, and staff to remain compliant with all COVID-19 recommendations from the federal CDC, the State of Vermont, and the City of Burlington.

The [Code of Student Conduct](#) outlines policies related to violations of the Green and Gold Promise. Sanctions for violations include fines, educational sanctions, parent notification, probation, and suspension.

### *Tips for Success*

Successful students often prepare for the classes (preview slides, book chapters, and other course materials) and have sufficient time to prepare for the exams. Many students find it helpful to attend office hours and address questions instead of accumulating them (e.g. until the exams). Despite no assignment, the problems behind each chapter in the textbook are good exercises to identify questions and strengthen the understanding. For students that may need more help for the math skills, CHEM 167 or MATH 121 will be recommended to take with CHEM 260.

*Here are a few resources for students on remote/online learning:*

- Checklist for success in <https://learn.uvm.edu/about/support-for-students/checklist-online-credit-courses/>
- Academic support for online courses: <https://www.uvm.edu/academicsuccess/online-learning-student-resources-remote-instruction>
- 30-minute webinar on online learning success (Mar 2020): [https://www.youtube.com/watch?v=Xp\\_MYsqQyvE](https://www.youtube.com/watch?v=Xp_MYsqQyvE)

Helpful resources other than the professor (e.g. [Undergraduate/Graduate Writing Center](#), [Supplemental Instruction](#), [Learning Co-op tutors](#), supplemental course materials)

### *Student Learning Accommodations*

In keeping with University policy, any student with a documented disability interested in utilizing ADA accommodations should contact Student Accessibility Services (SAS), the office of Disability Services on campus for students. SAS works with students and faculty in an interactive process to explore reasonable and appropriate accommodations, which are communicated to faculty in an accommodation letter. All students are strongly recommended to discuss with their faculty the accommodations they plan to use in each course. Faculty who receive Letters of Accommodation with [Disability Related Flexible accommodations](#) will need to fill out the Disability Related Flexibility Agreement. Any questions from faculty or students on the agreement should be directed to the SAS specialist who is indicated on the letter.

#### **Contact SAS:**

A170 Living/Learning Center;  
802-656-7753  
[access@uvm.edu](mailto:access@uvm.edu)  
[www.uvm.edu/access](http://www.uvm.edu/access)

### **Important UVM Policies**

**Religious Holidays:** Students have the right to practice the religion of their choice. If you need to miss class to observe a religious holiday, please submit the dates of your absence to me in writing by the end of the second full week of classes. You will be permitted to make up work within a mutually agreed-upon time. <https://www.uvm.edu/registrar/religious-holidays>

**Academic Integrity:** The policy addresses plagiarism, fabrication, collusion, and cheating. <https://www.uvm.edu/policies/student/acadintegrity.pdf>

**Grade Appeals:** If you would like to contest a grade, please follow the procedures outlined in this policy: <https://www.uvm.edu/policies/student/gradeappeals.pdf>

**Grading:** For information on grading and GPA calculation, go to <https://www.uvm.edu/registrar/grades>

**Code of Student Conduct:** <http://www.uvm.edu/policies/student/studentcode.pdf>

**FERPA Rights Disclosure:** The purpose of this policy is to communicate the rights of students regarding access to, and privacy of their student educational records as provided for in the Family Educational Rights and Privacy Act (FERPA) of 1974.

<http://catalogue.uvm.edu/undergraduate/academicinfo/ferparightsdisclosure/>

**Promoting Health & Safety:** The University of Vermont's number one priority is to support a healthy and safe community:

**Center for Health and Wellbeing:** <https://www.uvm.edu/health>

**Counseling & Psychiatry Services (CAPS)** Phone: (802) 656-3340

**C.A.R.E.** If you are concerned about a UVM community member or are concerned about a specific event, we encourage you to contact the Dean of Students Office (802-656-3380). If you would like to remain anonymous, you can report your concerns online by visiting the Dean of Students website at <https://www.uvm.edu/studentaffairs>

**Final Exam Policy:** The University final exam policy outlines expectations during final exams and explains timing and process of examination period. <https://www.uvm.edu/registrar/final-exams>

**Alcohol and Cannabis Statement:** The Division of Student Affairs has offered the following statement on alcohol and cannabis use **that faculty may choose to include, or modify for inclusion**, in their syllabus or Blackboard site:

**Statement on Alcohol and Cannabis in the Academic Environment**

As a faculty member, I want you to get the most you can out of this course. You play a crucial role in your education and in your readiness to learn and fully engage with the course material. It is important to note that alcohol and cannabis have no place in an academic environment. They can seriously impair your ability to learn and retain information not only in the moment you may be using, but up to 48 hours or more afterwards. In addition, alcohol and cannabis can:

- Cause issues with attention, memory and concentration
- Negatively impact the quality of how information is processed and ultimately stored
- Affect sleep patterns, which interferes with long-term memory formation

It is my expectation that you will do everything you can to optimize your learning and to fully participate in this course.