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Classroom: 6S-232
Course Hours: Mon & Wed: 8:00-10:00 AM
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Course description and learning objectives:
The course introduces various physical principles and their link with chemical phenomena, with primary emphasis on quantum chemistry and brief discussion on chemical kinetics. The objectives include:
(1) The student will comprehend quantum theory and basic kinetic theory, and their applications to chemical problems.
(2) The student will learn how to use mathematical language to describe various quantum and kinetics models related to chemical problems, including calculus, basic differential equation, and fundamental linear algebra such as matrix.
(3) The student will apply quantum theory to understand atomic structure and molecular structure, and how they are characterized by use of molecular spectroscopy.
(4) The student will be able to read and explain the trend in scientific graphics.
(5) The student will develop critical thinking and problem solving skills.


Scientific calculator: recommended.

No cell phone or any electronic devices with a communication component, such as emails, text messages, and/or image exchanges, etc, is allowed in quizzes or exams. Violating this policy will result in a failing final grade.

Grading:
In-class quizzes 15%
Exam 1: 17%
Exam 2: 17%
Exam 3: 17%
Final: 34%

Policies:
(1) No make-up for quizzes and exams will be arranged for any quizzes and exams.
(2) Absence from the class for more than 4 times will result in a WU (withdraw unofficially) grade.
(3) Any form of cheating, such as copying and plagiarism, will result in a failing grade.
(4) No grades from Quizzes and Exams will be dropped.
Outlines:

Chap. 7 Introduction to quantum theory
Chap. 8 The quantum theory of motion
Chap. 9 Atomic structure and atomic spectra
Chap. 10 Molecular structure
Chap. 12 Rotational and vibrational spectra
Chap. 13 Electronic transitions
Chap. 20 Chemical kinetics

The required procedures to master this course are as follows: (1) understanding the concepts in your notes; (2) reading through the textbook for details; (3) exercising on all types of problems to evaluate your knowledge. We therefore highly recommend students should work on the exercises and problems in the end of each chapter.

Online resources:
* Please check Blackboard and your email account frequently for any new announcement.
* Lecture notes will be posted on Blackboard after each topic is completed.
* Any attached electronic files will be sent to your e-mail accounts registered in Blackboard.
* A scientific calculator is required in quizzes and exams.