FLORIDA INTERNATIONAL UNIVERSITY
CHM 6480 QUANTUM MECHANICS
SPRING 2018

Instructor: Jeff Joens
Office: CP 331; phone 348-3121 (voice mail)
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Time: M,W,F 1:00pm tp 1:50pm
Room: Green Library 250
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Office hours: To be announced.

Course objective: To provide in one semester coverage of advanced topics in quantum chemistry.

Prerequisites: Math, up to MAC 2312 (Calculus 2); one semester of undergraduate quantum mechanics at the level of CHM 3411.

Text: Ira N. Levine, Quantum Chemistry, SeventhEdition (Pearson, 2016), plus handouts.

Grading:	Homework	200 points
	Exams (2 x 100)	200 points
	Final exam	150 points
	TOTAL	550 points

Notes: 1) Final grades will be based on total accumulated points.

2) The final exam will be comprehensive. You must take the final exam to pass the course.

3) The hour exams and final exam will be in class exams. They will be open book, handout, and notes.

4) Homework assignments will be given approximately once a week, and will be collected and graded. Late homework will not be accepted. In calculating your homework grade, your lowest two scores on the homework assignments will be dropped. Homework solutions and exam solutions will be posted on my website.

5) Cheating or assisting other students in cheating is a violation of University policy and will be punished.

6) You are expected to retain old exams and homework for your records until after final course grades have been given.

Tentative course outline

Note: This is the first time I have used this textbook, and so the outline given below should be considered tentative. It may be revised depending on how the class progresses throughout the semester.

Chapter 1 - The Schrodinger Equation
Chapter 2 - The Particle In a Box
Chapter 3 - Operators
Chapter 4 - The Harmonic Oscillator
Chapter 5 - Angular Momentum
Chapter 6 - The Hydrogen Atom
Chapter 7 - Theorems of Quantum Mechanics
FIRST EXAM - Friday, Februay 16th
Chapter 8 - The Variational Method
Chapter 9 - Perturbation Theory
Chapter 10 - Electron Spin and the Spin-Statistics Theorem
Chapter 11 - Many Electron Atoms
Chapter 12 - Molecular Symmetry
Chapter 13 - Electronic Structure of Diatomic Molecules
SECOND EXAM - Friday, March 30th
Chapter 14 - Theorems of Molecular Quantum Mechanics
Chapter 15 - Molecular Eletronic Structure
Chapter 16 - Electron-Correlation Methods
Chapter 17 - Semiempirical and Molecular-Mechanics Treatments of Momecules
FINAL EXAM - TBA