BOOKS/SUPPLIES/COURSES
1) Thomas Engel – 3rd edition
2) Non programmable calculator
3) Useful – a Gen Chem book and other PChem textbooks

DESCRIPTION/PREREQUISITES
Chem 161A and Physics 72 (or their equivalents), with grades of C or better (C- not accepted). Reminder: prerequisite means that you have already completed the class, and are responsible for knowing the material presented in the class. Note that Chem 161A prerequisite implies that you have had Math 32 (at minimum three semesters of calculus).

Upon successful completion of this course, the student should be fluent in the language of quantum mechanics and able to carry out and interpret the results of a wide variety of quantum mechanical calculations. Additionally, the student should understand a number of concepts involved in the use of molecular spectroscopy and how these techniques can be used to measure atomic and molecular properties. The student should also be able to apply group theory to understand some of the constraints placed upon molecular behavior due to symmetry.

BS/BA CHEMISTRY PROGRAM LEARNING OUTCOMES ADDRESSED BY Chem 161B
PLO #4 Demonstrate understanding of core concepts and to effectively solve problems in physical chemistry.

COURSE LEARNING OUTCOMES FOR Chem 161B
CLO #1 Upon completion, the student should know how to interpret (and normalize) a wavefunction, calculate a probability using a wavefunction, calculate and interpret an expectation value, utilize and interpret the Heisenberg Uncertainty Principle and understand and utilize the Superposition principle.
CLO #2 The student will apply the essential mathematical relationships to understand quantum mechanical models such as Particle in a Box, Harmonic Oscillator, and Rigid Rotor.
CLO #3 The student will know how to employ quantum mechanical principals and models to interpret topics in the hydrogen atom, polyelectronic atoms, and bonding.
CLO #4 Students will apply essential mathematical relationships to physical problems from group theory to understand molecular behavior and interpret vibrational spectra.

EXAM SCHEDULE
Exam I – Feb. 27 Exam II – March 27 Exam III – April 24 Final – TBD

GRADING
3 lecture exams 60 %
Final 28 %
Homework/Participation 12 %

100% – 88.0% - A+ to A-
87.9% - 76.0% - B+ to B-
75.9% - 60.0% - C+ to C-
59.9% – 50.0% - D+ to D-
below 50.0% - F

Incompletes will not be given unless a strong compelling reason with proof is furnished to support the need for an incomplete. Incompletes will not be granted just because the university won’t late drop you or because the low grade will disqualify you, put you on probation or increase your car insurance payment! Incompletes do not remove past scores in exams! Incompletes are removed by completing pending tasks. I do not provide special projects to make up incompletes.
PARTICIPATION

Beginning of class - One student selected at random student will be asked to do a two minute review of what was discussed in the last lecture.

Last part of class – One student per problem will be randomly asked to come write out the solution on the board and mention quickly how the problem was solved.

You can turn down your presentation but you go to the bottom of the list and won’t get another chance for quite sometime to earn your 6%. To get the 6% you must participate twice.

MISCONDUCT

While taking exams or quizzes, the student should keep his/her eyes down on his/her own paper. No whispering or talking is allowed. You are not allowed to share a calculator or periodic table during exams or quizzes. If your calculator fails inform the instructor. You may not use your cell phone or PDA as a calculator; these should be stored in your backpack or on the floor beneath your seat. You may not answer the phone during a test. You cannot have headphones/earphones in your ears irrelevant of what you are listening to. All printed or written material (notebooks, textbooks, etc.) should be placed under the seat, left outside the room or placed near the lecturer’s table, at the front of the room. Failure to comply will cause the instructor to pick up the exam and give a grade of F for the exam and/or course. Willful solicitation, procurement or conveyance of exams/quizzes/unknowns will also result in failure of the course. The instructor can and will bring the person caught cheating to the attention of the university committee in charge of student misconduct.

EMERGENCIES/EVACUATIONS

If you hear a continuously sounding alarm, or are told to evacuate by Emergency Coordinators (colored badge identities), walk quickly to the nearest stairway (end of each hall). Take your personal belongings with you as you may not be immediately allowed to return. Follow instructions of Coordinators. Be quiet so you can hear. Once outside, move away from the building. Do not return to the building unless the Police or Coordinators announce that it is permissible. If an alarm should occur during an exam or quiz, please attempt to give your instructor the paper.

MISCELLANEOUS

1) Each exam in lecture will require that you sign a statement indicating that you have behaved in an honorable manner while taking the exam. The statement will also indicate that you are not aware of any other classmate cheating, etc. during the course of the exam. If you feel that you are unable to sign such a pledge, talk to me.

2) If a fire alarm were to interrupt an exam please do the following: Leave the room via the door closest to the instructor and give the instructor your quiz or exam. Provide assistance to any disabled students. Take your books with you since there is some chance you might need to go to your next class before you are allowed in the room.

3) Any student with a disability requiring special testing conditions must show the necessary documentation from the university to the instructor within the first two weeks of class.

4) Campus Policy in Compliance with the American Disabilities Act: If you need course adaptations or accommodations because of a disability, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities requesting accommodations must register with the Disability Resource Center to establish a record of disability.

5) Academic Integrity Statement: Your own commitment to learning, as evidenced by your enrollment at San Jose State University, and the University’s Academic Integrity Policy requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the Office of Student Conduct and Ethical development. The policy on academic integrity can be found at http://sa.sjsu.edu/student_conduct

6) For downloadable graphing paper if you want to draw it the graph by hand you can visit http://incompetech.com/graphpaper/lite/

OFFICE HOURS

M and W 5-6 and by appointment

Please be efficient and organized when you come to ask questions during office hours. I might have to limit the amount of time I spend with you if there are several students waiting. On occasions I will have to cancel office hours
due to medical appointments or important committee meetings.

### Syllabus for Chem. 161B

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