This assignment is due at the beginning of class on Wednesday, October 29, 2008.

Do problems the following problems in *Molecular Symmetry and Group Theory*: 4.1, 4.2, 4.5 (see the posted solution to problem 4.4 for $\text{H}_2\text{O}$ to see how to handle cases in which two AOs match the symmetry of one SALC), 4.11, 4.13.

The in-class portion of the mid-term exam will be given in class on Wednesday, November 5th. It will cover the material we have discussed in class in conjunction with Chapters 1 through 5 in Gillespie and Popelier’s book, and Chapters 1 through section 4.3 in my book. (Material covered in section 4.4 and beyond will be covered on the final exam.) The test will consist of numerical and discussion problems that are very similar to those you saw as part of the homework assignments. More emphasis will be given to topics concerned with molecular structure and bonding, and less to purely theoretical aspects of group theory. However, assigning molecules to point groups, being able to reduce a reducible representation systematically, knowing how to set up a reducible representation for hybrid orbitals or SALCs, and knowing how to apply the group theory relationships we have discussed will be essential knowledge. I will give you a sense of the format of the test in class on Wednesday, October 29th.

The take-home portion of the exam, which will have you write essay answers to certain questions, will be due at the beginning of class on Wednesday, November 12th. **Your answers must be word processed, single spaced, using 12 point Times New Roman or Book Antiqua type, printed on 8½ x 11” white paper with 1” margins all around.** Any figures should be produced with a chemical drawing program. You may consult either of the texts for this course, the overheads and assignment solutions posted on the course web site, or your own notes. You may not use any other resources, including another person, any other site on the internet, or any other publication (book, periodical, etc.). Each of your essays should answer the question completely but succinctly at a level appropriate for a professional chemist. Be sure that what you submit is your own work.