SYLLABUS
(PDF version)

INSTRUCTOR: Prof. Mark A. Young
Office: W237 CB
Phone: 335-2099
Office Hours: M, W, F 8:30 - 9:30 AM or by appointment
E-mail

COURSE DESCRIPTION: The course covers the principles of quantum mechanics with a specific focus on applications in chemistry. In addition to covering the fundamental theorems of quantum mechanics and chemical topics such as bonding, the course will provide a rigorous background for understanding modern quantum chemical calculations.

LECTURE: T, Th 10:55 AM - 12:10 PM in 1100 UCC (University Capitol Centre, better known as the Old Capitol Mall); attendance is expected.

TEXT AND MATERIALS:

- WEB PAGE: The class web page can be found at http://www.uiowa.edu/~c004233/

LIBRARY RESERVE: Various course materials, including a copy of the textbook, will be on reserve in the Geoscience Library in 136 Trowbridge Hall.

SOFTWARE: Students will be expected to make use of graphing software (e.g.
Kaleidagraph), numerical and symbolic mathematical software (e.g. Mathematica), and chemistry computational software (e.g. Spartan) to complete the assigned course work. Use of these programs will not be covered in class. Tutorials and informational links are on the course web site and software manuals and books are available in the Chemistry Center (E225 CB).

**GRADING:** The final course grade will be based on the following components:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Problem sets</td>
<td>60%</td>
</tr>
<tr>
<td>Report</td>
<td>15%</td>
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<tr>
<td>Final exam</td>
<td>25%</td>
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While the distribution of grades will generally be similar to that of previous semesters, variations between classes are common. Plus/minus grades will be assigned within each range.

**PROBLEM SETS:** Relevant problems will be assigned from the text and other sources on a regular basis. The problems may involve the use of graphing software (e.g. Kaleidagraph), mathematical programs (e.g. Mathematica), and molecular modeling packages (e.g. Spartan). You may discuss the problem sets with other students in the class but the work that is submitted should be prepared independently. (Please see the section in the Student Academic Handbook on Rights and Responsibilities for University policy on academic misconduct). Problem sets will be due in the Chemistry Center (E225 CB) at 4:00 PM on the announced due date. Late assignments and assignments submitted by email will not be accepted. All figures should be prepared and printed with appropriate computer software unless otherwise specified. The homework assignments must be securely fastened with a staple.

**REPORT:** A written report on a relevant research project, chosen in conjunction with the instructor, is required. The projects will involve molecular modeling of appropriate chemical systems and processes. The report should be in a format suitable for submission to a scientific journal and consist of a concise but thorough description of the goals, background, theory and results from the project.

**FINAL EXAM:** The final exam will be comprehensive and might cover any of the topics presented during the semester. Students should bring a #2 pencil, their
University ID, and a basic scientific calculator to the exam. The use of graphing calculators, programmable calculators, or data transmitting devices will not be permitted during the exam. Make-up and early examinations must be arranged with the instructor and are only available in the event of a University recognized excuse (e.g. a documented medical emergency). The exam will not be rescheduled to accommodate holiday or other travel plans.

**FINAL EXAM SCHEDULE:** The final is scheduled for Tuesday, May 11, at 9:45 - 11:45 AM in the regular classroom.

**REGRADE POLICY:** If you feel that an error was made in the grading of a problem set, you may request a re-grade by notifying the instructor within one week of the graded material being returned. The request should be in writing and indicate the section of the work that is in question. Please note that the entire problem set may be subject to a re-grade.

**OTHER POLICIES AND PROCEDURES:** This course is given by the College of Liberal Arts. This means that class policies on matters such as requirements, grading, and sanctions for academic misconduct are governed by the College of Liberal Arts. Students wishing to add or drop this course after the official deadline must receive the approval from the office of the Dean of the College of Liberal Arts. Students with questions about these or other CLAS policies should speak with an academic advisor or with the staff in 120 Schaeffer Hall. Please see the [CLAS Academic Handbook](#) for further information.

A student seeking academic accommodations should first register with Student Disability Services and then meet with a SDS counselor who determines eligibility for services. A student approved for accommodations should meet privately with the course instructor to arrange particular accommodations. Please see the [Student Disability Services](#) web site for more information.

Please inform the instructor and/or teaching assistant if you have any complaints about the course. If you feel that your complaints have not been resolved, follow the procedure described in the [Rights and Responsibilities](#) section of the Student Academic Handbook.

Exams, problem sets and other work handed in for a grade should represent the individual student's work and should not be copied or plagiarized. Academic fraud
will be reported to the departmental DEO and to the Associate Dean for Academic Programs and Services in the College of Liberal Arts and Sciences. If necessary, review the [College of Liberal Arts policy](#) on plagiarism and cheating.

**Sexual harassment** subverts the mission of the University and threatens the well-being of students, faculty, and staff and will not be tolerated.

If severe weather is indicated by the UI outdoor [warning system](#), class members will seek shelter in the innermost part of the building, if possible at the lowest level, staying clear of windows and of free-standing expanses which might prove unstable. The class will resume after the severe weather has ended. Please see the [Operations Manual](#) for more information.

Public health authorities have recommended that people with flu-like illnesses stay home and not return to public spaces until 24 hours after they have no fever. In order to prevent the spread of disease, please do not come to class, meet with other groups of students, attend office hours, or contact offices in person while you are ill. Based on this recommendation, I will not require you to report to a doctor or to Student Health to verify a flu-like illness if you are ill, please complete an illness-absence [form](#) when you are well enough to do so. Your grade will not be penalized for absences if you are following the recommendations of health authorities.

The instructor will respond to student questions sent via e-mail with a typical response time of two working days. In addition, general notices concerning the course may be sent to students by electronic mail. Due to privacy considerations, the official University e-mail address (firstname-lastname@uiowa.edu) as listed on the class roster will be used for all communications. Each student is considered to be on notice for information sent to their official e-mail address. Also note that assignments submitted by e-mail will not be accepted. Please see the policy at the [Division of Student Services](#) for additional information.