INSTRUCTOR: Professor Sarah Larsen      OFFICE: W176 CB      PHONE: 335-1346

EMAIL: sarah-larsen@uiowa.edu

LECTURE: TTh 9:30-10:45, E250 Adler

OFFICE HOURS: Mon, Wed 10:00-11:30 AM or by appointment

COURSE WEB PAGE: Chemistry 4:234, Iowa Courses Online (ICON) website URL = http://icon.uiowa.edu/. Use your Hawk ID and Hawk ID password to log in to ICON.

TEXTBOOK: Molecular Spectroscopy by Jeanne L. McHale, Prentice Hall, 1999

COURSE DESCRIPTION: Quantum mechanical theory of molecular spectroscopy. Time dependent perturbation theory, selection rules and lineshapes. Selected applications in microwave, vibrational (infrared and Raman), electronic, optical and magnetic resonance spectroscopy. Students will maintain a research portfolio of current literature related to molecular spectroscopy.

COURSE OBJECTIVES: To learn advanced concepts in molecular spectroscopy based on quantum mechanics and to apply these concepts to examples in the current literature.

EXAM DATES: Tuesday, Oct. 18 (7-9 PM) and Tuesday, Dec. 13, 2:15 PM (final exam schedule)

GRADING: Semester grades will be based on two exams (one of which is the final), problem sets, and the research portfolio as outlined below:

- Problem sets: 30%
- Research portfolio: 20%
- Exams: 50%

It is expected that the distribution of grades will be similar to previous semesters. Plus/minus grades will be assigned. If you feel that an error was made in the grading of homework or exams, you may request a regrade by notifying the instructor within one week of receiving the graded material.

PROBLEM SETS: There will be 6-7 graded problem sets due at the beginning of class on the date due. You must not copy work that is turned in for a grade (see academic honesty policy). You can discuss the homework problems, but please remember that the written work must be your own. Late assignments will be accepted with a point penalty.

TOPICS (approximate schedule):

<table>
<thead>
<tr>
<th>Week of</th>
<th>Topics</th>
</tr>
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<tbody>
<tr>
<td>Aug. 22</td>
<td>Ch. 1 Quantum Mechanics Review</td>
</tr>
<tr>
<td>Aug. 29, Sept. 5</td>
<td>Ch. 2 Electromagnetic Radiation</td>
</tr>
<tr>
<td>Sept. 12, 19, 26</td>
<td>Ch. 4 Time-dependent Perturbation Theory of Spectroscopy</td>
</tr>
<tr>
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<td>Ch. 5 Time-dependent Approach to Spectroscopy</td>
</tr>
<tr>
<td>Oct. 3, 10</td>
<td>Ch. 6 Experimental Considerations: Absorption, Emission and Scattering</td>
</tr>
<tr>
<td>Oct. 17</td>
<td>Ch. 8 Rotational Spectroscopy</td>
</tr>
<tr>
<td>Oct. 24, Oct. 31</td>
<td>Ch. 9,10 Vibrational Spectroscopy of Diatomics and Polyatomic Molecules</td>
</tr>
<tr>
<td>Nov. 7</td>
<td>Ch. 11 Electronic Spectroscopy</td>
</tr>
<tr>
<td>Nov. 14</td>
<td>Ch. 12 Raman and Resonance Raman Spectroscopy</td>
</tr>
<tr>
<td>Nov. 28, Dec. 5</td>
<td>Supplemental Notes – Magnetic Resonance Spectroscopy</td>
</tr>
</tbody>
</table>
The College of Liberal Arts and Sciences: Policies and Procedures*

Administrative Home. The College of Liberal Arts and Sciences is the administrative home of this course and governs matters such as the add/drop deadlines, the second-grade-only option, and other related issues. Different colleges may have different policies. Questions may be addressed to 120 Schaeffer Hall, or see the CLAS Student Academic Handbook (http://www.clas.uiowa.edu/students/handbook/).

Electronic Communication. University policy specifies that students are responsible for all official correspondences sent to their University of Iowa e-mail address (@uiowa.edu). Faculty and students should use this account for correspondences. (Operations Manual, III.15.2. Scroll down to k.11.)

Accommodations for Disabilities. A student seeking academic accommodations should first register with Student Disability Services and then meet privately with the course instructor to make particular arrangements. See www.uiowa.edu/~sds/ for more information.

Academic Honesty. The College of Liberal Arts and Sciences expects all students to do their own work, as stated in the CLAS Code of Academic Honesty. Instructors fail any assignment that shows evidence of plagiarism or other forms of cheating, also reporting the student's name to the College. A student reported to the College for cheating is placed on disciplinary probation; a student reported twice is suspended or expelled.

CLAS Final Examination Policies. Final exams may be offered only during finals week. No exams of any kind are allowed during the last week of classes. Students should not ask their instructor to reschedule a final exam since the College does not permit rescheduling of a final exam once the semester has begun. Questions should be addressed to the Associate Dean for Undergraduate Programs and Curriculum.

Making a Suggestion or a Complaint. Students with a suggestion or complaint should first visit the instructor, then the course supervisor, and then the departmental DEO. Complaints must be made within six months of the incident. See the CLAS Student Academic Handbook.

Understanding Sexual Harassment. Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. All members of the UI community have a responsibility to uphold this mission and to contribute to a safe environment that enhances learning. Incidents of sexual harassment should be reported immediately. See the UI Comprehensive Guide on Sexual Harassment (http://www.uiowa.edu/~eod/policies/sexual-harassment-guide/index.html) for assistance, definitions, and the full University policy.

Reacting Safely to Severe Weather. In severe weather, class members should seek appropriate shelter immediately, leaving the classroom if necessary. The class will continue if possible when the event is over. For more information on Hawk Alert and the siren warning system, visit the Public Safety web site (http://www.uiowa.edu/~pubsfty/intlinks.htm).

*These CLAS policy and procedural statements have been summarized from the web pages of the College of Liberal Arts and Sciences (http://www.clas.uiowa.edu/) and The University of Iowa Operations Manual (http://www.uiowa.edu/~our/opmanual/index.html)