Physical Chemistry Topics (004:242)  Fall 2012

“Modern Microscopy and Applications to Nanoscience and Nanotechnology”

Instructor: Prof. Alexei Tivanski
Office: E272 CB
Phone: 384-3692
Office Hours in E272 CB: TTh 2:00-3:30 or by appointment
E-mail: alexei-tivanski@uiowa.edu

Department of Chemistry Contact Information:
Students in need of additional information may contact staff in the Chemistry Center (231 CB or phone: 335-1341) during normal business hours.

Lecture: TTh 9:30-10:45 PM  C139 PC

Course Materials:
- Course Web Page: WebCT (http://courses.uiowa.edu/index.html)
- Supplemental literature will be posted on ICON course web page

Course content:
The course aims to expose students to the emerging highly interdisciplinary fields of nanoscience and nanotechnology focusing on modern microscopy and imaging techniques. Topics will include principles of scanning probe microscopy and X-ray spectromicroscopy, and applications in chemistry, biology, environmental science with special emphasis to nanoscience and nanotechnology. Examples will include but not limited to new applications for organic light emitting diodes, photochromic organic nanocrystals, organic thin film field-effect transistors, nanoparticles, enzymes, proteins, etc. Methods used to fabricate molecular systems for device purposes will be described. The physical and chemical properties of molecular structures in terms of the chemical, optical, and electrical properties will also be described. This course is intended for graduate students and advanced undergraduates in engineering and science.

Grading: Plus/minus grades will be appended to the letter grades assigned for the course. The final grade will be determined from the following activities:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework assignments (two assignments)</td>
<td>2x150 pts</td>
</tr>
<tr>
<td>Exams (two exams)</td>
<td>2x300 pts</td>
</tr>
<tr>
<td>Presentation</td>
<td>100 pts</td>
</tr>
</tbody>
</table>

Homework assignments: There will be two graded homework assignments, each covering approximately half of the materials. Each homework assignment will be followed by the exam.

Examinations: There will be two exams, each covering approximately half of the material. There will be no final exam.

Presentation: Each student will make one 5-10 mins presentation to the class focusing on a topic relevant to nanoscience and microscopy. Presentations will be scheduled throughout the semester.
Regrades: If you feel that an error was made in the grading of your work, you may request a regrade by notifying the instructor within one week of receiving the graded material. The request should be in writing and indicate the section of the material that is in question. Please note that the entire report or quiz may be subject to a re-grade.

Complaints, Proper Conduct, and Modifications:

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 dishonesty 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 special needs or disabilities that may require some modification of seating, testing, or other class requirements, should see Prof. Tivanski so that appropriate arrangements may be made. (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.

Students will usually perform laboratory experiments in groups. However, work that is handed in for a grade should represent the individual student's work and should not be copied or contain plagiarizations. If necessary, review the College of Liberal Arts policy on plagiarism and cheating.

The instructor will respond to student questions 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. (Please see the policy at the Division of Student Services.)

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 at www.uiowa.edu/~eod/policies/sexual-harassment-guide/index.html for assistance, definitions, and the full University policy.

In severe weather, the class members should seek shelter in the innermost part of the building, if possible at the lowest level, staying clear of windows and free-standing expanses. The class will continue if possible when the event is over.