

CHEM 600D “Special Topics in Physical Chemistry: Photochemistry and Photobiology”

Fall 2010
T 5:00 – 7:15 pm
LaT 300

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General information:

There is no required textbook for this course. There will be several books on reserve in Faraday library that can be used for reference. In addition, the course will use several on-line resources (links will be posted on Blackboard) and articles from the literature that will be distributed in class. The format of the course will be divided between lectures and discussion sessions. We will meet as a group on Tuesdays at 5 pm in LaT 300 and additional dates as needed.

The interaction of electromagnetic radiation with matter has profound implications in physics, chemistry and biology. It is the basis for our visual cycle, plant life on earth and all forms of spectroscopy. Recent advances in fast and ultrafast spectroscopy have significantly enhanced our understanding of these processes at the molecular level. This course will cover basic photophysics and photochemistry as applied to organic chemistry and biological systems and then expand to discuss specific problems of interest. Topics included but not limited to are: kinetics and dynamics in macromolecular systems, spectroscopic techniques (absorption, fluorescence, action spectra, CD), role of light in homeostasis and disease and medical imaging. The emphasis will be largely on these processes in living systems but may also include discussion of related phenomena such as solar energy, environmental issues and (ionizing) radiation chemistry.

The grading for the class will be based on 10% class participation and homework assignments, 30% in-class presentation and 60% writing project. The writing project will be modeled after the NIH F31 National Research Service Award (NRSA) for Individual Predoctoral Fellowships:

<http://grants.nih.gov/grants/guide/pa-files/PA-10-108.html>

<http://grants.nih.gov/grants/guide/pa-files/PA-10-109.html>

The student will write on a topic in photochemistry/photobiology of their choosing in the framework of the F31 grant proposal style. Note that this includes developing a budget for the project. The class will have several lectures on technical writing, proposal development, budgets and funding mechanisms. The in-class presentation will be a short ca. 20 minute synopsis of the grant proposal. It is hoped that some of you will submit the F31 application for funding and if your future plans include post-doctoral studies that you will consider the F32 NRSA.

Additional Information:

College policies on incompletes/drops/withdrawals will be followed. Also, the University policies regarding academic integrity will be strictly followed. Academic dishonesty includes (but is not limited to) looking at another student's exam during a testing session, allowing another

student to copy your work, and use of unauthorized materials (e.g., lecture notes, crib sheets, textbooks, prohibited electronic devices including pagers, cell phones or programmable calculators that contain stored equations, formulas or text) during exams. More importantly, for this course, is the issue of plagiarism which is a form of academic dishonesty. Plagiarism is, in fact, a valid cause for suspension or dismissal from the University. You are encouraged to view the NIU Academic Integrity on-line tutorial at <http://www.ai.niu.edu/ai/>; this may take approximately one hour to work through. You are required to read the NIU Statement on Plagiarism found at <http://www.engl.niu.edu/composition/guidelines/plag.shtml>. Students who engage in academic dishonesty will receive an F in the course.

NIU abides by Section 504 of the Rehabilitation Act of 1973 regarding provision of reasonable accommodations for students with documented disabilities. If you have a disability that may have a negative impact on your performance in this course and you may require some type of instructional and/or examination accommodation, please contact me early in the semester so that I can provide or facilitate providing accommodations you may need. If you have not already done so, you will need to register with the Center for Access-Ability Resources (CAAR), the designated office on campus to provide services and administer exams with accommodations for students with disabilities. CAAR is located on the 4th floor of the University Health Services building (753-1303). It is your responsibility to initiate a request for services from CAAR and to do so in advance of needing the services.