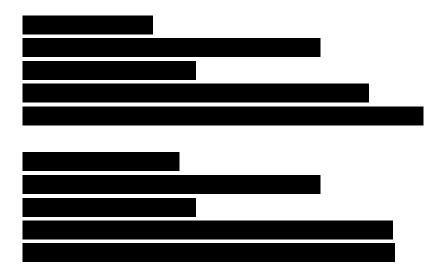
Chemistry of Optical Organic Materials

6484- Spring

Tuesdays and Thursdays: 9:35-10:55 am Lecture Hall 1201A, MoSE Building



The goal of this course is to provide a broad description of the basic chemical and physical <u>concepts</u> that determine the properties of optically active materials. Examples of <u>organic</u> materials will be used to illustrate these key concepts. The discussion will include aspects of synthesis, electronic structure, physico-chemical characterization, and device applications.

There are no specific prerequisites.

Assignments will take the form of reading papers, which will be part of the midterm and final exams. There will be two mid-term exams on February 21 and March 27 and a final exam on May 03.

Grading (the exams will include as well questions on review articles):

1 st Mid-term	100
2 nd Mid-term	150
Final	250
Total	500

	Date	Topic	
1	Jan. 10	Electronic Structure of Organic Materials JLB	
2	Jan. 12	Electronic Structure of Organic Materials JLB	
3	Jan. 17	Donors and Acceptors SRM	
4	Jan. 19	Electronic Structure of Organic Materials JLB	
5	Jan. 24	NO CLASS	
6	Jan. 26	Concepts of Polarization SRM	
7	Jan. 31	Light Absorption SRM	
8	Feb. 02	Light Absorption and Applications of Dyes SRM	
9	Feb. 07	Light Propagation in Materials JLB	
10	Feb. 09	Light Propagation in Materials and Optical Fibers JLB	
11	Feb. 14	Second-order Processes SRM	
12	Feb. 16	Optical Fibers JLB	
13	Feb. 21	First Mid-term	
14	Feb. 23	Intro to Quantum Mech. Approaches and EM radiation JLB	
15	Feb. 28	Quantum Mech. and Perturbation Theory of Polarizability	
		to 3 rd order JLB	
16	Mar. 01	Quantum Mech. and Perturbation Theory of Polarizability	
		to 3 rd order JLB	
17	Mar. 06	Photochromism and Optical Limiting SRM	
18	Mar. 08	Structure-Property Relationships for NLO SRM	
19	Mar. 13	Calculation of NLO Properties JLB	
20	Mar. 15	Structure-Property Relationships for NLO SRM	
21	Mar. 20	Spring Break - No class	
22	Mar. 22	Spring Break - No class	
23	Mar. 27	Second Mid-term	
24	Mar. 29	Second-order NLO materials SRM	
25	Apr. 3	Lasers JLB	
26	Apr. 5	Lasers JLB	
27	Apr. 10	Liquid Crystals SRM	
28	Apr. 12	Lasers JLB	
29	Apr. 18	Third-order Processes and Materials SRM	
20	Note unusual day!	T DI I AI II COM	
30	Apr. 19	Two-Photon Absorption SRM	
31	Apr. 24	Review – JLB	
32	Apr. 26	Review – SRM	
33	May 03	Final Exam 8:00 am - 10:50 am	