

UK Department of Chemistry
CHE 580: Materials Chemistry, Spring 2013
Course Description and Syllabus

Meeting Times: TR 8:00-9:15 a.m.
Classroom: CP-111
Instructor: Beth S. Guiton, CP-148C
Office Hours: Mondays 2-5 p.m.

Course Description: A detailed investigation of a topic of current significance in chemistry.

Required Text:

Basic Solid State Chemistry (Second Edition), Anthony R. West; John Wiley & Sons Ltd (1999).

Optional Visualization Aids:

Advanced Molecular Model Set for General and Organic Chemistry, LLC Mega Molecules (~\$20)

Polyhedral Model Kit, Institute for Chemical Education (~\$95)

CrystalMaker software suite: available in person in Dr. Parkin's x-ray diffraction facility, or remotely, at vnc://xray.uky.edu (user name: che580; password: c_maker). A VNC client may be required when accessing from a linux or windows machine. Note: if someone is already logged on to the computer when you try to access it, open a text box and type "Are you using this machine?" – if no-one responds, log out and back in as che580.

Course Coverage:

An overview of basic solid state materials chemistry, including the structure of materials, synthetic methods, methods of characterization such as x-ray diffraction and electron microscopy, and a discussion of their optical, electronic, and magnetic properties. Prereq: CHE 510, CHE 514, or permission from the instructor.

CHE 580 home page: http://www.chem.uky.edu/research/guiton/che580_S13.php

Examinations:

Three examinations will be given: two midterms on February 19, 2013 (8-9:15 a.m.) and March 26, 2013 (8-9:15 a.m.), and a Final on May 3, 2013 (10:30 a.m. - 12:30 p.m.). Unless announced otherwise Midterm 1 will examine the material covered in Problem Sets 1-3, Midterm 2 will examine the material covered in Problem Sets 4-6, and the Final will be cumulative. Any student with a legitimate conflict with an exam time must inform me in writing, according to university regulations posted online (<http://www.uky.edu/Registrar/bulletinCurrent/toc2.htm>) by the Office of the Registrar.

Problem Sets:

Problem sets will be assigned on Tuesdays and due the following Tuesday during class. Late assignments (up to one week) will receive half credit.

Literature Presentation:

A short (15-20min) presentation will be given by each *graduate student* during the final three classes before dead week (April 11, 16, and 18). The subject of the presentation will be a paper from the literature assigned by the instructor not less than one week ahead of time. Students should prepare a short powerpoint (or similar) presentation to summarize the essential details of their assigned paper using the material learnt from the course to aid in their interpretation. Further details to be announced in class.

Grading:

Problem sets (10):	20% (30% for undergraduates)
Literature presentation:	10% (graduate students only)
Midterm 1:	20%
Midterm 2:	20%
Final examination:	30%

Grades will be assigned according to the following tentative scheme. Ranges may be lowered but will not be raised. A: 85-100%; B: 75-84%; C: 60-74%; D: 50-59% (undergraduates only)

Attendance:

Attendance will be taken at the beginning of each class. Students attending a *minimum of 20* (out of 22) of the regular classes (or with legitimate excused absences), and *all three* of the literature presentation classes will be awarded five extra credit points.

Important Dates:

Midterm examination 1:	Tuesday February 19, 8:00 - 9:15 a.m.
Spring break:	March 11-16
Midterm examination 2:	Tuesday March 26, 8:00 - 9:15 a.m.
Last problem set due:	April 16
Literature Presentations:	April 11, 16, 18
Last day of classes:	April 25
Final examination:	Friday, May 3, 10:30 a.m. – 12:30 p.m.

Academic Integrity:

Homework should be viewed as original pieces of work to convey that you understand the rationale for solving the problems. You may confer with others on various techniques and ask for help, but it is up to you to illustrate your understanding. Verbatim copying of someone else's homework will not be tolerated. The minimum penalty for cheating on this course is a grade of E.

Excused Absences:

An excused absence must be documented in writing. Excused absences from exams or quizzes should be given to me (the instructor) prior to the exam or quiz. A make-up exam or quiz will be given to the student within a few days of the missed exam or quiz. The University allows excused absences for the following:

- Illness of the student or serious illness of a member of the student's immediate family.
- The death of a member of the student's immediate family.
- Trips for members of student organizations sponsored by an academic unit, trips for university classes, and trips for participation in intercollegiate athletic events.
- Major religious holidays. This must be notified to the instructor no later than the last day for adding classes.
- Any other circumstance which the instructor finds reasonable cause for nonattendance.

Course Evaluations:

Course evaluations are an important component of the Department's instructional program. Time will be allotted during class towards the end of the semester to complete the evaluation of the course and the instructor.

Letter of Accommodation:

If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide me with a **Letter of Accommodation** from the Disability Resource Center (Room 2, Alumni Gym, 257-2754, jkarnes@uky.edu) for coordination of campus disability services available to students with disabilities.