CHEMISTRY 454.06
Topics in Inorganic Chemistry: Solid State and Materials Chemistry
ILLINOIS STATE UNIVERSITY
SPRING 2007
MW 6-7:15 p.m.

INSTRUCTOR:
Dr. Craig McLauchlan (ccmclau@ilstu.edu)
Office: 206 SLB (Science Laboratory Building)

OFFICE HOURS:
As posted on the Chem 454.06 bulletin board (outside SLB 218) or by appointment.

WEBSITE:
URL: http://www.ilstu.edu/~ccmclau/che454/index.html

TEXT:
Solid State Chemistry, 3rd Edition by Smart and Moore
Other Materials: Current literature, books on reserve at Milner Library, and in-class handouts.

COURSE DESCRIPTION:
This course is a one semester survey course introducing students to materials and solid state chemistry. Students will be introduced to examining solids chemically and to general characterization and synthetic techniques. Students should also gain a better understanding of bonding and physical properties (including electrical, magnetic, and optical) of solids.

STUDENT OBJECTIVES:
Through successful completion of CHE 454.06, students have the opportunity to become more familiar with the synthesis, characterization, and properties of solids. Students will be able to develop and demonstrate knowledge, skills and competencies in the following areas:

1. Structure and structure determination of crystalline solids
2. Bonding in solids
3. Synthesis and characterization techniques of solids
4. Physical properties of solids

EXAMINATIONS:
In class, "hour" exams will be given 6:00 to 7:15 pm on the following days (tentatively):
Exam 1 Wednesday, February 14th
Exam 2 Wednesday, March 28th
The Final Exam is Monday, May 7; time: 5:30-7:20 PM
**Programmable calculators may not be used during examinations.** Makeup exams will not be given for missed hourly examinations except in serious and documented extenuating circumstances. If you miss one exam with a valid excuse, a grade will be assigned based on your other course work if we cannot find a mutually acceptable make-up exam time. You should talk to the instructor **BEFORE** missing you exam to verify your excuse. If you **do not** have a valid excuse, you will be assigned a zero for that exam.

**GRADING SYSTEM:**
Grades will be based on the following:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>50</td>
</tr>
<tr>
<td>Paper</td>
<td>100</td>
</tr>
<tr>
<td>Hour Exam 1</td>
<td>100</td>
</tr>
<tr>
<td>Hour Exam 2</td>
<td>100</td>
</tr>
<tr>
<td>Final Exam</td>
<td>150</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>500</strong></td>
</tr>
</tbody>
</table>

For planning purposes, assume A > 90%, B > 80%, C > 70%, D > 55%, F<55. Grades may be scaled upward a bit *(i.e. in your favor)* if deemed appropriate by the instructor.

**HOMEWORK AND PROBLEM SETS:**
Homework problem sets for credit will be given in class periodically, and will be discussed the following lecture period. Students will be expected to come to class with the homework completed and be prepared to discuss the problems as a class. They should be turned in by the due date. Late problem sets cannot be accepted because I post the solutions promptly. These problem sets will be graded. You may work on these problem sets in study groups, but **as a matter of academic honesty,** I ask that you **write the names of your study group members on your problem set.** The problems are not supposed to be additional obstacles to be overcome after studying the chapters, but are rather an integral part of learning the material as you go. Working the problems as you study helps you understand the material; if you have trouble with them, that helps you identify the areas that need more work before you go on to the next topics. It is usually a mistake to try to master a whole chapter before attempting any of the problems. Studying and problem solving should go hand in hand! Waiting until the day before a problem set is due (or the hour before) is also probably not the best way to maximize the benefit of learning via problem sets.

**PAPERS:**
The paper will be a short (5-6 pages) discussion of a particular topic in solid state/materials chemistry. Shortly, you will receive a handout listing possible topics to write about and more details about the paper. The paper will be due **no later** than **Wednesday, May 2 in class** and is worth 100 points; papers handed in earlier than that are welcome.

Any student needing to arrange a reasonable accommodation for a documented disability should contact Disability Concerns at 350 Fell Hall, 438-5853 (Voice), 438-8620(TTY).

**DISCLAIMER:** Any changes to this syllabus will be announced in class, therefore, it is the responsibility of the student to attend every lecture and be aware of any announcements.