

Chemistry of Solid Materials

Syllabus Spring Semester 2019

Daniel R. Talham

CLB 412

Office Hours: Monday 2-4 pm, and by appointment.

Topics: Approximately 2/3 of the course will be dedicated to background and fundamentals of solid state chemistry, with the final 1/3 reserved for current or advanced topics.

Fundamentals

Classification and Structures of Solids

Electronic Structure of Solids

Semiconductors, Metals and Superconductors

Magnetism and Magnetic Materials

Optical Properties of Solids

Surfaces

Characterization Methods

Current Topics

Specific topics to be decided.

Objective: At the conclusion of the course students should have an understanding of the fundamentals that underlie most contemporary solid-state and materials chemistry, including: solid-state structure types; electronic structure of semiconductors, metals, and superconductors; magnetism and magnetic materials; optical properties; surface effects and properties; solid-state nanochemistry; and modern characterization methods.

Grading: Grades will be based on student presentations and homework (25%), first exam to be given in-class on Mon. Feb. 25 (30%), and second exam to be given during the last week of class, April 22 or 24 (45%).

Homework: Homework will be assigned approximately every two weeks and will be graded as pass/fail. Doing homework with a partner or in groups is encouraged. On the due date, students will take turns working problems and leading the discussion.

Accompanying Reading:

“Solid State Chemistry, An Introduction” L. Smart and E. Moore. Chapters of this book will be used as an introduction to several topics. I will assign readings from the 4th edition, but any edition should be OK. Reading will also be assigned throughout the course from several sources including books, review articles and primary literature articles.

The following are included as part of the UF Policy on Course Syllabi. Please contact the instructor if there are any questions.

Attendance: Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

Academic Honesty: UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code.” On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel.

Accommodations for students with disabilities: Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

UF grading policies for assigning grade points:
<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

UF Course Evaluation Process: Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.