

## Syllabus for MAE 2321/MSE 3300 – 001 Spring 2009

**Instructor's Name:** Nancy Michael

**Office:** 204D Woolf Hall

**Office Telephone Number:** 817-272-1258

**Email Address:** michael@uta.edu

**Office Hours:** 2 – 3 pm Tuesdays, 10 -11 am Fridays

**Course Number, Section and Course Title:** MAE 2321 – 001, Fundamentals of Materials Science

**Time and Place of Class Meetings:** 311 Woolf Hall, T,Th, 11am - 12:20pm, Jan 20 – May 8, 2008

**FINAL EXAM:** Tuesday, May 12, 11am -1:30 pm.

**Classroom Etiquette:** In the classroom, all phones and computers must be silenced. If electronics are creating too much distraction, even when silenced, the instructor may request all phones be turned off and laptops shut to provide a better learning environment. Please: no earphones or texting during class.

**Description of Course Content:** Physical, mechanical, electrical, chemical properties of metals, semiconductors, ceramics, polymers, composites, and aggregates and the relationships between these properties and the electronic, crystal, micro and macrostructures of the materials.

The Material covered will include the following sections of the textbook. Students are responsible for material in these sections and lecture content.

1.1-.7	p. 1-8 Introduction
2.1-.8	p. 10-29 Atomic Structure and Atomic Bonding
3.1-.21	p. 32-84 Structure of Metals and Ceramics
4.1-.12	p. 93-118 Polymer Structures
5.1-.13	p. 123-149 Imperfections in Solids
6.1-.7	p. 154-171 Diffusion
10.1-.20	p. 357-409 Phase Diagrams
11.1-.17	p. 418-467 Phase Transformations
7.1-.20	p. 177-225 Mechanical Properties
8.1-.19	p. 236-275 Deformation and Strengthening Mechanisms
9.1-.20	p. 282-337 Failure
12.1-.25	p. 475-523 Electrical Properties
16.1-.13	p. 668-708 Corrosion and Degradation of Materials

**Student Learning Outcomes:** Students will have an understanding of how the electronic structure of atoms and atomic arrangement in solids influences mechanical and electrical properties. Students will be able to interpret simple phase diagrams and have an understanding of the relationship between thermal history, composition, and microstructure of alloys.

**Requirements:** Prerequisite: CHEM 1441 or CHEM 1465, PHYS 1444.

**Required Textbooks and Other Course Materials:** Fundamentals of Materials Science and Engineering, an integrated approach, 2<sup>nd</sup> ed. William Callister.

**Class website:** <http://www-woolf.uta.edu>

login: 2321michael password: matical7603

HW assignments and solutions will be posted. When used for lecture, presentation slides will also be made available to students through the class website.

**Grading Policy:**

Mid-term 1: 20%	A	≥ 90% of full credit
Mid-term 2: 20%	B	≥ 80%
Mid-term 3: 20%	C	≥ 70%
Final (comprehensive): 30%	D	≥ 60%
Homework: 10%		
Quiz: Extra credit.		

Major exams will be closed book/closed notes. You will need a ruler.

Homework: Approximately 10-12 homework assignments. Homework is due at the **beginning** of class and should be clearly written. Late homework will be accepted up to 5pm on the due date for 90% of the earned grade.

Quiz: May be announced or unannounced. Total extra credit available will be between 1 and 5 pts toward your final grade.

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**Make-up Exam Policy:** One missed exam may be made up by taking a single comprehensive make-up exam during the last week of the semester. A second missed exam cannot be made up.

### **Descriptions of major assignments and examinations with due dates:**

**Tentative** Schedule:

Mid-term 1: Tuesday Feb 17

Mid-term 2: Tuesday, Mar 31

Mid-term 3: Thursday Apr 30

**Attendance Policy:** Attendance is expected. You are responsible for material covered in class.

**Drop Policy:** Refer to the University drop policy

**Americans with Disabilities Act:** The University of Texas at Arlington is on record as being committed to both the spirit and letter of federal opportunity legislation; reference Public Law 92-112 – The Rehabilitation Act of 1973 as amended. With the passage of federal legislation entitled *Americans with Disabilities Act (ADA)*, pursuant to section 504 of the Rehabilitation Act, there is renewed focus on providing this population with the same opportunities enjoyed by all citizens.

As a faculty member, I am required by law to provide “reasonable accommodations” to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty of their need for accommodation and in providing authorized documentation through designated administrative channels. Information regarding specific diagnostic criteria and policies for obtaining academic accommodations can be found at [www.uta.edu/disability](http://www.uta.edu/disability). Also, you may visit the Office for Students with Disabilities in room 102 of University Hall or call them at (817) 272-3364.

**Academic Integrity:** It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University.

“Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or part to another person, taking an examination for another person any act designed to give unfair advantage to a student or the attempt to commit such acts.” (Regents’ Rules and Regulations, Series 50101, Section 2.2)

**Student Support Services Available:** The University of Texas at Arlington supports a variety of student success programs to help you connect with the University and achieve academic success. These programs include learning assistance, developmental education, advising and mentoring, admission and transition, and federally funded programs. Students requiring assistance academically, personally or socially should contact the Office of Student Success Programs at (817) 272-6107 for more information and appropriate referrals.

**E-Culture Policy:** The University of Texas at Arlington has adopted the University email address as an official means of communication with students. Through the use of email, UT Arlington is able to provide students with relevant and timely information, designed to facilitate student success. In particular, important information concerning registration, financial aid, payment of bills, and graduation may be sent to students through email.

All students are assigned an email account and information about activating and using it is available at [www.uta.edu/email](http://www.uta.edu/email). New students (first semester at UT Arlington) are able to activate their email account 24 hours after registering for courses. There is not additional charge to students for using this account, and it remains active as long as a student is enrolled at UT Arlington. Students are responsible for checking their email regularly.

**Grade Grievance Policy:** Please refer to the undergraduate catalog.