

SYLLABUS

MME 2303

INTRODUCTION to MATERIALS SCIENCE AND ENGINEERING

Course Description: This course is designed to introduce you to the properties of engineering materials and relationships to their structure, behavior and processing; materials testing and measurement of properties. Selection of materials for engineering applications considering interrelationships between structure, properties, processing and performance. The course will be presented in the sections defined by the course outline listed below. At the beginning of each section, the student should read and study the section objectives. Sample review questions are offered for review purposes. The section objectives should clearly define what course material the student should know in each section.

Instructor: Dr. Christopher Bradley
Email: cbradley2@utep.edu (*preferred method of communication*)
Office: Metallurgy Suite, Room M201-C

Office Hours: If you need to meet please email me so that we can make arrangements as needed.

Required Textbook: "*Materials Science and Engineering: An Introduction*", 9th Edition by William D. Callister.

Your Output and Grading:	Homework	10%
	In-class/Quizzes	10%
	Exams (3 total)	55%
	Final Exam	25%

Assignments: Homework and class assignments are to be handed in on engineering paper which means assignments turned in on standard paper, notepads, index cards, etc. will ***not*** be accepted. Assignments that require graphical representation will need to be performed using Excel which will be printed out and attached to your assignment. All assignments will require you to ***show all work*** where necessary in order to receive full credit for the problems. Late homework will ***not be accepted*** unless otherwise cleared by me, do not assume that I will accept a late assignment(s) without penalty.

Quizzes: Quizzes will be assigned at the beginning of class and will be based on content provided from the previous class (in-class examples and homework problems). Make-up quizzes will not be accepted.

Please note: **NO programmable calculators will be allowed for quizzes and exams.**

Honesty and Professionalism: Any instance of cheating or plagiarism will be reported to the Dean of Students for appropriate action (which includes possible failure of this course and/or dismissal from the University).

Classroom Etiquette: Part of being a professional is arriving on time and being prepared to participate. Another part is respecting the other people in the class, including the speaker. If you come late to class or have to leave early, please do so quietly. Cell phones are to be silenced during class. If you must answer the phone, please leave the class and return discreetly when the call is over. Notetaking will be done by you, not your cell phone. *If you are caught taking photographs during class, your phone will be confiscated and returned after class is finished.*

What do I need to do to learn in this class?

This course has a lot to do with concepts! To learn the concepts, you will need to read the book ahead of class time, attend class daily and take notes. I will post notes on Blackboard after the class so that you can do the homework and stud for the exams.

Can I work in a group?

I encourage you to work together in groups to solve homework problems. Discussing problems in groups is an effective way to learn difficult concepts.

Of course you must work alone when completing quizzes and exams.

Your work must be professional. If you would be embarrassed to hand in your homework/quiz/exam to your supervisor then please do not hand it in to me. Work that is deemed unprofessional will be returned ungraded.

Proposed Course Outline

- Introduction
- Atomic Structure and Interatomic Relationships
- Structure of Crystalline Solids
- Imperfections in Solids
- Diffusion
- Mechanical Properties of Materials
- Dislocations and Strengthening Mechanisms
- Failure Analysis
- Phase Diagrams