

ME 312: Materials Science Fundamentals Spring 2014

Textbook: No textbook is required. Materials from the textbook below are available online:

Fundamentals of Materials Science and Engineering/An Integrated Approach;
William D. Callister, Jr. and David G. Rethwisch; 3rd Ed.; John Wiley & Sons.

The materials from this text, including graphics, are available online at www.wileyplus.com. Once you register (for a fee) for WileyPlus, you will be able to access course materials, including online homework assignments. These will be graded online automatically by the WileyPlus system.

Instructor: Prof. Ian I. Suni, B-139, 453-7822, isuni@siu.edu
Office hours: MF, 9:00-12:00

Lab TAs: Jia Huey Kong, Zhezhen Fu

Lecture:		T-Th	11:00 – 12:15	Neckers 240
Labs:	Section 1	Th	3:00-4:50	Engr B-143
	Section 2	T	3:00-4:50	Engr B-143
	Section 3	W	4:00-5:50	Engr B-143

Topical Outline:

- Introduction: Chapter 1.
- Atomic Structure and Interatomic Bonding: Chapter 2.
- Structures of Metals and Ceramics: Chapter 3.
- Polymer Structures: Chapter 4.
- Imperfections in Solids: Chapter 5.
- Diffusion: Chapter 6.
- Mechanical Properties: Chapter 7.
- Deformation and Strengthening Mechanisms: Chapter 8 (8.1-8.11).
- Failure: Chapter 9 (9.1-9.11, 9.15-9.17).
- Phase Diagrams: Chapter 10.
- Electrical Properties: Chapter 12 (12.1-12.13, 12.15, 12.18).

Grading:

Home Work (must be submitted online)	10%	
Laboratory:	10%	
EXAM I (February 13):	Chapters 2-5	26.67%
EXAM II (March 27):	Chapters 6-8	26.67%
EXAM III (May 1):	Chapters 9, 10, 12	26.67%

Note: Students are required to attend class. All exams are closed book & notes and are given in class at the usual time and place. Students are allowed to bring one hand written sheet (8.5"x11") of information (both sides). The exams will have both problem solving and multiple-choice questions.

Missing an exam will result in ZERO for that exam unless there is a valid excuse with documentation. In that case, the scores on subsequent exams will be more heavily weighted. **No make-up exams will be given for any reason whatsoever. No exams will be given in advance, for any reason whatsoever.**

Homework Assignments will be assigned and graded online using the WileyPlus system. Due dates are January 23 and 30; February 6 and 27; March 6 and 20; and April 10, 17 and 24.

"We emphasize student achievement and success because achievement and success are essential if we are to shape future leaders and transform lives."¹

<http://pvcaa.siu.edu/>

IMPORTANT DATES *

<u>Semester Class Begins</u>	01/13/2014
<u>Last day to add a class</u> (without instructor permission):	01/24/2014
<u>Last day to withdraw completely and receive a 100% refund:</u>	01/26/2014
<u>Last day to drop a course using SalukiNet:</u>	03/23/2014
<u>Last day to file diploma application</u> (for name to appear in Commencement program):	03/28/2014
<u>Final examinations:</u>	5/5 – 5/9/2014

* Note: For outreach, online, and short course drop/add dates, visit Registrar's Academic webpage <http://registrar.siu.edu/>

SPRING SEMESTER HOLIDAYS

Martin Luther King, Jr.'s Birthday 01/20/2014
Spring Vacation 03/08—03/16/2014

WITHDRAWAL POLICY ~ Undergraduate only

Students who officially register for a session may not withdraw merely by the stopping of attendance. An official withdrawal form needs to be initiated by the student and processed by the University. For the proper procedures to follow when dropping courses and when withdrawing from the University, please visit <http://registrar.siu.edu/pdf/ugradcatalog1314.pdf>

INCOMPLETE POLICY~ Undergraduate only

An INC is assigned when, for reasons beyond their control, students engaged in passing work are unable to complete all class assignments. An INC must be changed to a completed grade within one semester following the term in which the course was taken, or graduation, whichever occurs first. Should the student fail to complete the course within the time period designated, that is, by no later than the end of the semester following the term in which the course was taken, or graduation, whichever occurs first, the incomplete will be converted to a grade of F and the grade will be computed in the student's grade point average. For more information please visit:

<http://registrar.siu.edu/grades/incomplete.html>

REPEAT POLICY

An undergraduate student may, for the purpose of raising a grade, enroll in a course for credit no more than two times (two total enrollments) unless otherwise noted in the course description. For students receiving a letter grade of A,B,C,D, or F, the course repetition must occur at Southern Illinois University Carbondale. Only the most recent (last) grade will be calculated in the overall GPA and count toward hours earned. See full policy at

<http://registrar.siu.edu/pdf/ugradcatalog1314.pdf>

GRADUATE POLICIES

Graduate policies often vary from Undergraduate policies. To view the applicable policies for graduate students, please visit

<http://gradschool.siu.edu/about-us/grad-catalog/index.html>

DISABILITY POLICY

Disability Support Services provides the required academic and programmatic support services to students with permanent and temporary disabilities. DSS provides centralized coordination and referral services. To utilize DSS services, students must come to the DSS to open cases. The process involves interviews, reviews of student-supplied documentation, and completion of Disability Accommodation Agreements.

<http://disabilityservices.siu.edu/>

STUDENT CONDUCT CODE

http://policies.siu.edu/other_policies/chapter3/conduct.html

SALUKI CARES

The purpose of Saluki Cares is to develop, facilitate and coordinate a university-wide program of care and support for students in any type of distress—physical, emotional, financial, or personal. By working closely with faculty, staff, students and their families, SIU will continue to display a culture of care and demonstrate to our students and their families that they are an important part of the community. For information on Saluki Cares: (618) 453-5714, or siucares@siu.edu,

<http://salukicare.siu.edu/index.html>

EMERGENCY PROCEDURES

Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. We ask that you become familiar with the **SIU Emergency Response Plan** and **Building Emergency Response Team (BERT)** programs. Emergency response information is available on posters in buildings on campus, available on BERT's website at www.bert.siu.edu, Department of Safety's website at www.dps.siu.edu (disaster drop down) and the Emergency Response Guideline pamphlet. Instructors will provide guidance and direction to students in the classroom in the event of an emergency affecting your location. *It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency.*

INCLUSIVE EXCELLENCE

SIU contains people from all walks of life, from many different cultures and sub-cultures, and representing all strata of society, nationalities, ethnicities, lifestyles, and affiliations. Learning from and working with people who differ is an important part of education as well as an essential preparation for any career. For more information please visit: <http://www.inclusiveexcellence.siu.edu/>

MORRIS LIBRARY HOURS

<http://www.lib.siu.edu/about>

LEARNING AND SUPPORT SERVICES

Help is within reach. Learning support services offers free tutoring on campus and math labs. To find more information please visit the Center for Learning and Support Services website:

Tutoring : <http://tutoring.siu.edu/>

Math Labs http://tutoring.siu.edu/math_tutoring/index.html

WRITING CENTER

The Writing Center offers free tutoring services to all SIU students and faculty. To find a Center or Schedule an appointment please visit <http://write.siu.edu/>

AFFIRMATIVE ACTION & EQUAL OPPORTUNITY

Our office's main focus is to ensure that the university complies with federal and state equity policies and handles reporting and investigating of discrimination cases. For more information visit:

<http://diversity.siu.edu/#>

Additional Resources Available:

SALUKINET: <https://salukinet.siu.edu/cp/home/displaylogin>

ADVISEMENT: <http://advisement.siu.edu/>

PROVOST & VICE CHANCELLOR: <http://pvcaa.siu.edu/>

SIU ONLINE: <http://online.siu.edu/>

¹ Southern Illinois University Carbondale. (2013). *Pathways to Excellence: A Strategic Plan*
Retrieved from http://chancellor.siu.edu/common/docs/A_Strategic_Plan.pdf