MIE 201 – Introduction to Materials Science (Spring 2017)

■ Instructor

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■ **Teaching Assistants**: Virginia Ng(vng@umass.edu), Rune Percy (rpercy@umass.edu)

■ **Office Hours:** Monday, 11AM-12PM

■ Course Goals

1. Rationalize the design of materials structure and its impact on observed properties.
2. Identify various structures in all classes of inorganic materials.
3. Describe the role of defects on materials properties at the atomic and microstructure scales.
4. Understand phase transformations in materials through phase diagrams and microstructures.
5. Describe various forms of materials processing.
6. Understand and explain the fundamentals behind mechanical, thermal, electrical, optical, magnetic, and chemical properties

■ Course Logistics

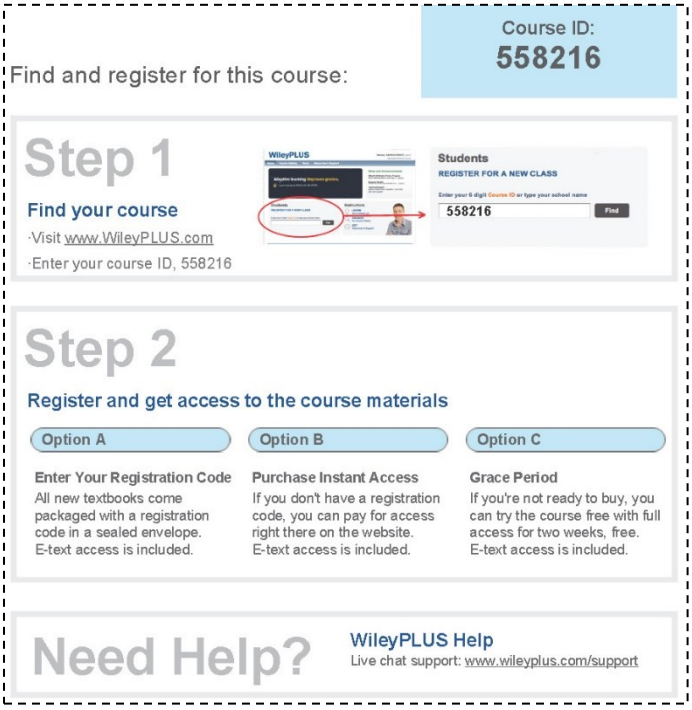
Lectures are scheduled M/W/F from 10:10-11:00AM in ELAB I, room 304. Attendance at lectures is expected. Students are encouraged to complete the appropriate reading assignment before each lecture period.
Course Moodle URL: https://moodle.umass.edu/course/view.php?id=34749

■ Textbook

Callister, W. D., and Rethwisch, D. G. *Fundamentals of Materials Science and Engineering: An Integrated Approach*. 9th ed. Wiley. Access Code to WileyPLUS online for homework, tutorials, and other resources (Comes with one of three text options at the textbook annex).

■ Homework (WileyPLUS Online)

Homework will be assigned through our class section within the WileyPLUS online resources.
*Class Section URL: www.wileyplus.com/class/558216



■ Grading and Scale

Homework (30%), Midterm I (20%), Midterm II (20%), Final Exam (30%)
*Only final exam is cumulative.
*The standard university scale (below) will be applied without curve.

Highest	Lowest	Letter
100.00 %	93.00 %	A
92.99 %	90.00 %	A-
89.99 %	87.00 %	B+
86.99 %	83.00 %	B
82.99 %	80.00 %	B-
79.99 %	77.00 %	C+
76.99 %	73.00 %	C
72.99 %	70.00 %	C-
69.99 %	67.00 %	D+
66.99 %	60.00 %	D
59.99 %	0.00 %	F

■ **Lecture Plan**

Week	Topic	Chapter	Assignment
1	Introduction	1, 2	Readings
2-3	Structure of Materials and Defects	3, 4	Homework 1
3	Diffusion	5	Homework 2
4	Mechanical Properties of Metals	6	Homework 3
5	Strengthening Materials and Failure	7, 8	Homework 4
	Mid-term Exam I (2/24/2017, 10:10-11:00AM)		
6-7	Phase and Phase Transformation	9, 10	Homework 5
8	Ceramics	12, 13	Homework 6
9	Polymers	14, 15	Homework 7
10	Composites	16	Homework 8
	Mid-term Exam II (4/3/2017, 10:10-11:00AM)		
11-12	Electrical and Thermal Properties	18, 19	Homework 9
13-14	Magnetic and Optical Properties	20, 21	Homework 10
15	Corrosion	11	Readings
	Final Exam (5/4/2017, 8AM-10AM)		

■ **Academic Honesty**

Academic dishonesty, in any form, will not be tolerated and you are responsible for educating yourself about the University's official policy on academic honesty. Following is a summary - you can read it in full at http://www.umass.edu/ombuds/honesty.php/ If an instructor finds that a student has violated the University's Academic Honesty Policy, the instructor has the right to lower the student's grade, or even to fail the student for the course. Students have the right to appeal such a grade penalty by an instructor. The University Academic Honesty Board, which must be notified by instructors of any grade penalty, reviews all student appeals. The Board may sustain or recommend modification of the penalty given by the faculty member, or may recommend sanctions exceed those originally given, such as suspension or expulsion from the University. The Board may also recommend sanctions for offenders who have committed multiple violations of the Academic Honesty Policy but who have not appealed the faculty members' decisions.