Instructor: Edwin L. Kagler

Office Hours: 10:00 - 11:00 am TTh, 2:00 - 3:00 pm MW, and by appointment
431 Engineering Sciences Building
293-2111 ext. 414

Required Textbook
Materials Science and Engineering, An Introduction, William D. Callister, Jr.,
John Wiley. 3rd edition, 1994

Course Outline:
A. Basic Concepts
   1. Atomic Structure and Interatomic Bonding
   2. Structure of Crystalline Solids
   3. Imperfections in Solids
   4. Diffusion
B. Properties of Metals
   1. Mechanical Properties of Metals
   2. Dislocations and Strengthening Mechanisms
   3. Failure
   4. Phase Diagrams
   5. Phase Transformations
   6. Thermal Processing
   7. Metal Alloys
C. Properties of Ceramics
   1. Structures and Properties of Ceramics
   2. Processing of Ceramics
D. Polymers
   1. Polymer Structures
   2. Characteristics, Applications and Processing of Polymers
E. Composite Materials
F. Corrosion and Degradation of Materials

Grading:
The grade will be determined by homework and three in-class exams. Class average after three exams will separate B’s and C’s. One standard deviation up and down will define cut-off for A’s and D’s. The final exam is optional and may be used to replace either the homework or the lowest exam grade. There will be no make-up exams.

<table>
<thead>
<tr>
<th>Homework</th>
<th>(25%)</th>
<th>weekly assignments</th>
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<tbody>
<tr>
<td>Exam 1</td>
<td>(25%)</td>
<td>Thursday, September 19</td>
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<tr>
<td>Exam 2</td>
<td>(25%)</td>
<td>Tuesday, October 22</td>
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<tr>
<td>Exam 3</td>
<td>(25%)</td>
<td>Thursday, November 21</td>
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<tr>
<td>Final</td>
<td>(optional)</td>
<td>3:00 - 5:00 pm, Thursday, December 12</td>
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