



ENGR 302

Materials Science for Engineers

Fall 2019

Instructor:	TBA
	Office Address TBA
	Office Hours TBA
	Phone Number TBA
	Email address TBA
Webpage:	We will use the Moodle course management system.
Class Times:	TBA
Texts:	<i>Materials Science and Engineering: An Introduction</i> , William D. Callister Jr and David G. Rethwisch, 10th Edition, Wiley
Description:	(Prereq: junior standing or permission of the instructor) (3 credits) This introductory course in materials science is designed primarily for engineering students who wish to understand the relationships between a material's structure, processing and properties (electrical, mechanical, and thermal). All levels of structure are considered: from macro structures easily visible to the eye through electronic structure of atoms. F.
Objectives:	Students will gain an understanding of: <ol style="list-style-type: none">1. Relation of bond energy to properties of engineering materials2. contributions of various strengthening mechanisms, including solid solution strengthening, precipitation strengthening, strain hardening, and grain size strengthening3. societal implications associated with a material, including globally, economically, and environmentally, as well as occupational safety
Outcomes	Upon completion of this course, student should be able to <ol style="list-style-type: none">1. read a phase diagram, including determining phase diagram type, predict phase compositions (given C0 and T), and predict microstructures for given compositions2. Interpret mechanical properties, including yield strength, ultimate tensile strength, and elastic modulus from engineering plots of σ-ϵ3. Conduct and present a material selection survey for current materials applications.
ABET:	This course supports the following ABET student learning outcomes: <ol style="list-style-type: none">1. <i>an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics</i>2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors3. an ability to communicate effectively with a range of audiences4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts

5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Grading:

Grades will be assigned according to the following scale:

A	90.0 – 100	exceptional work, significantly above the expectations of the course
B+	85.0 – 89.9	
B	80.0 – 84.9	excellent work, solid understanding of all concepts
C+	75.0 – 79.9	
C	70.0 – 74.9	good work, solid understanding of main concepts
D+	65.0 – 69.9	
D	60.0 – 64.9	poor work, weak understanding of main concepts

Grades will be weighted as follows:

TBA

Attendance:

STUD-SENA-332: Unexcused Absence Penalties – an instructor is permitted to impose a penalty, including assigning the grade of F, for unexcused absences in excess of 25 percent of the regularly scheduled class meetings.

STUD-SENA-332 also lists the valid circumstances for an excused absence, notably:

- Incapacitating illness
- Official representation of the university
- Death of a close relative
- Religious holidays

Exams:

TBA

Honesty:

Code of Student Conduct: Plagiarism, cheating, attempted cheating and all other forms of academic dishonesty is prohibited. The Code of Student Conduct or the Academic Integrity Code <<https://www.coastal.edu/academicintegrity/code/>> provides further information, including other examples of cheating and the list of possible sanctions. In essence, academic dishonesty is pretending someone else's work is your own. Turnitin may be used for written assignments. **All academic dishonesty violations will be reported.**

Contingencies:

If normal class and/or lab activities are disrupted due to illness, emergency, or crisis situation, the syllabus and other course plans and assignments may be modified to allow completion of the course. If this occurs, an addendum to your syllabus and/or course assignments will replace the original materials.

Communication:

I will try to respond to emails within one business day. Please use your @coastal.edu email.

ADA statement:

Coastal Carolina University is committed to equitable access and inclusion of individuals with disabilities in accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act. Individuals seeking reasonable accommodations should contact Accessibility & Disability Services (843-349-2503 or <https://www.coastal.edu/disabilityservices/>).

Revisions: This syllabus and schedule are tentative and subject to change by the instructor with notice to the student as the semester progresses.