

MSE 398: Materials Design Thinking

1 cr., Fall 2022

CRN: 61663

Lecture:

4025 Campus Instructional Facility
Friday 12:00 - 12:50 PM

Contact

Dr. Matthew D. Goodman
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210 Ceramics Building
217-244-9253

Office Hour:

- By appointment
210 Ceramics Building or Zoom

Class Description and Objectives

Introduction to the design aspect as it relates to Materials Science and Engineering. Topics include Human Centered Design, Statistical Modeling, Design of Experiments, Material Selection, and Project Management tools. Working to fully develop design projects for implementation in a subsequent course (MSE 395). Understanding of objectives and constraints such as economic, environmental, ethical, health and safety, sustainability, manufacturability, social, and political concerns as they relate to project design.

Required Text/Equipment

- Canvas (<https://canvas.illinois.edu>)
- Ansys Granta CES EduPack (available on UIUC webstore)

Grading Policies

50% Worksheets & HW
25% MechSE Collab Project
25% Attendance

Preliminary Grading Scheme (with +/-):

A: 90 – 100 %
B: 80 – 89.9 %
C: 70 – 79.9 %
D: 60 – 69.9 %

Worksheets: Lecture worksheets will be assigned, and students will have approximately one week to complete them for full credit. These will be uploaded and submitted via Canvas. To earn full credit, students should show all work and state any assumptions.

MechSE Collab Project: A mini design project, collaborating with the MechSE design class, will have the MechSE teams describe their project, with stated requirements. In small groups, you will determine the best material(s) for their goal and present your findings to the design group.

Attendance: Attending lectures and being actively engaged will result in receiving full points for this category.

Late Homework: Late homework assignments will be accepted until the solution has been posted online (this may occur the same day its due). There is a 10% penalty per day late.

Re-grading policy: For simple addition/subtraction errors on points awarded, please bring up the assignment or exam after class or stop by during office hours. Any other requests require a type-written explanation that includes your name, assignment or exam, problem in question, and a

written description describing the mis-grading and why a re-grading is warranted. Any attempt to “doctor” or manipulate the assignment will be dealt with under the Student Code.

Academic Integrity: Alleged misconduct, including, but not limited to, giving or receiving an i>clicker to answer lecture questions, using unauthorized materials during exams, falsifying records, etc., is a violation of the Student Code and must be reported as an infraction of academic integrity. I reserve the right to take photographic evidence.

Disability: If you have a disability, the university has several great resources that can be found at www.disability.illinois.edu.

Please contact me if I can be of any assistance

COVID Policies:

Everyone is to adhere to the CDC recommendations and campus policy regarding covid mitigation. Violators will be removed from class and the misconduct reported.