ME 498 NanoManufacturing for Sustainable Energy
Professor Cai

Syllabus

Fall 2023

LECTURE: Tu & Th 11:00 AM – 12:20 PM, Sidney Lu Mech Engr Bldg 2051.

OFFICE; EMAIL: 4414 MEL; lilicai@illinois.edu

OFFICE HOURS: Tue 1:30 – 2:30 PM on Zoom or by appointment

Zoom Link
https://illinois.zoom.us/j/82505814493?pwd=R1VJMG5tZnBBZFFtNklrb0NDN
WtoUT09

Meeting ID: 825 0581 4493
Password: 359517

GRADING: LC3 LC4
Homework 40% Homework 30%
Midterm 30% Midterm 25%
Final Project 30% Final Project 25%
Review Paper 20%

Letter grades are assigned according to the following scale:
97% ≤ A+ ≤ 100% 93% ≤ A < 97% 90% ≤ A- < 93%
87% ≤ B+ < 90% 83% ≤ B < 87% 80% ≤ B- < 83%
77% ≤ C+ < 80% 73% ≤ C < 77% 70% ≤ C- < 73%
67% ≤ D+ < 70% 63% ≤ D < 67% 60% ≤ D- < 63%
00% ≤ F < 60%

WEBSITE: All course info (lecture notes, homework, etc.) will be posted at:
https://canvas.illinois.edu

PARTICIPATION: Class attendance and participation are required.

EXAMS: The Midterm Exam will be Thursday, Oct 12, in class.

OBJECTIVES: Meeting the world’s growing energy needs in a sustainable fashion is one of the most pressing problems today. This course will introduce the scope of the energy problems, define some of the options for sustainable energy generation and storage, and look into the basic physics and chemistry of emerging sustainable energy technologies including batteries, fuel cells, electrolysis, solar fuels, etc. The focus is to provide a basic understanding of the impacts of nanotechnology on emerging energy systems. Topics including the fundamental mechanisms and state-of-the-art techniques related to nano-manufacturing and advanced characterization of functional nanomaterials for sustainable energy applications will be discussed.
General Rules:

1) Class attendance and participation are required. Absence is not an excuse for missing class announcements or assignments.

2) Homework problems will be assigned every 1 – 2 weeks. You should complete the homework problems in order to prepare for the exams in the course.

3) You must provide official documentation on exam conflicts to the instructor at least 1 week before the exam date.

4) Any discussion of grading will be handled by the primary instructor (i.e., Prof. Cai). There is a 2-week limit on grade discussions. There will be no discussions after the graded item after two weeks from when it was returned to the class.

5) All students are responsible for knowing and understanding the University policies on academic integrity (see studentcode.illinois.edu).