INTRODUCTION TO MATERIALS SCIENCE AND ENGINEERING

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COURSE TIMES: 12:30–1:50 pm, Tuesday and Thursday (Central Standard Time)
LOCATION: 3031 Campus Instructional Facility
COURSE WEBSITE: canvas.illinois.edu

COURSE DESCRIPTION: This 2-credit course provides students with a first look into the vibrant, interdisciplinary field of materials science and engineering. The course introduces fundamental building blocks for thinking like a materials scientist, such as: how to draw and interpret phase diagrams, how to relate materials structure, properties, processing, and performance, how to draw crystal structures and identify crystal planes and directions, how to evaluate materials for specific applications, and how to describe the major materials classes, their properties, and how they are used in our world. We will also discuss frontiers of materials research and engineering in diverse areas including nanomaterials, biomaterials, energy materials, and more. To facilitate learning, the course will include demonstrations, experiments, case studies, and a term project.

ATTENDING CLASS:

- Student in Section A should plan to attend class in person 12:30–1:50 pm, Tuesday and Thursday in 3031 Campus Instructional Facility
- Students in section B (online) may attend class asynchronously by watching recordings on MediaSpace.

COURSE MATERIALS: Course materials, including handouts and problem sets will be available online through our course Canvas website at canvas.illinois.edu . On the Canvas website, you can also access partially completed lecture slides before class. Students often choose to download or print lecture slides before class to assist with note-taking. Video recordings of lectures will be posted on our course channel on MediaSpace.

TEXTBOOK: William D. Callister Jr. and David G. Rethwisch, "Fundamentals of Materials Science and Engineering", Plenum Press, New York, 5th Edition, 2015. This textbook is available in 3 different formats: as a physical book, as a digital edition, and as an interactive online zyBook. You may use any of these three formats.

EXPECTATIONS: I expect you to: come to class prepared and on time, actively participate during class, interact collegially with other members of the class, complete readings and assignments in a timely manner, and seek help when you run into difficulty. You are also expected to check Canvas and your e-mail regularly for course updates. I also expect that if you are taking this course, you have a genuine interest in learning about materials science and engineering. Students who take this course solely in order to get an A are not typically satisfied with their experience.

EVALUATION:
Grading for the course will be broken down as follows:

Participation	(15%)
Homework	(35%)
Class Project	(10%)
Quizzes	(40%)

PARTICIPATION:
Attending and engaging in class is integral to the interactive nature of this course. If you are in Section A, you may earn participation points in several ways: by attending class synchronously and participating in online polling questions or by completing the "Weekly Check-in" questions on Canvas. You need to earn 100 participation points to get full credit. You cannot earn more than 120 points. Below is the distribution of points possible from each source:

In-class polling	up to 70 (up to 5 pts per class, and **not** offered every class period)
Weekly check-ins	up to 50 (up to 6 pts per week).

As you can see from the participation grading scheme, you will need to participate regularly to get full participation points, but you have choices on how you would like to participate. You should be able to check how many iClicker points you have on Canvas; This will be updated a few times per semester. Students in Section B will be able to earn full participation points by completing Weekly check-ins.

PROBLEM SETS: Problem sets will typically be due on Thursdays at 12:00 PM, Central Standard Time. You will be issued one Late Homework Coupon, which can submitted with one homework set for a 24-hour extension. Otherwise, *late problem sets will not be accepted.*

We will be managing homework submission and grading through Gradescope. You will submit your homework to Gradescope as a digital file by scanning a paper copy of your homework or directly uploading a digital copy of your work. After the homework is graded, you will be able to view your grade and get feedback about your work. If you spot an error in the grading, you have one week from the date the homework was graded to submit a regrade request through Gradescope. More information is available at: https://www.gradescope.com/help#help-center-section-student-workflow

In all problem sets, it is your responsibility to show your work and provide explicit evidence that you applied appropriate concepts, used logical reasoning, and followed correct procedures in order to get points for each problem. It is not the responsibility of the grader to decipher what you did or how you got your answer. The most common way students lose points on problem sets is by not showing enough work; if you do not show your work, you will not receive full credit, even if your answers are correct. I strongly encourage you to look at the handout "A roadmap for tackling problem sets in materials science" for guidance and example problem set solutions.

You are encouraged to collaborate and seek help. But, your write-ups must be in your own words, not copied or paraphrased from your classmates or any other sources. You ***must acknowledge in writing*** *anyone who you talked to or worked with in order to help complete your work.* For example, asking "Do you know how to start problem 5" is OK as long as it is acknowledged, but it is not appropriate to divide up problems 1-4 between students and then copy the answers from each other.

ICLICKERS: To conduct in-class polling for in-person attendees (section A), we will be using iClicker. You can get an iClicker Student Remote, or you can subscribe to the iClicker app on your phone or laptop. You will receive credit for in-class polling if you attend class synchronously and respond to the questions posed each class. Credit is assigned per day of class and is based on participation only. You can find more information about setting up iClicker in the iClicker handout.

QUIZZES: This class will contain 4 quizzes. The quizzes will each be worth 8-10% of your total grade. Quizzes will be announced 1-2 weeks in advance; the final quiz will occur during the final exam period.

CLASS PROJECT: As your class project for MSE182, you and your team will design an interactive exhibit on a topic in materials science and engineering for a scientific outreach activity. You will receive more information and detailed instructions on the final project in mid-October.

OFFICE HOURS AND GETTING HELP:
If you need help or simply would prefer to work in the company of others, you have several options:

1. Attend the study sessions (also called TA office hours). Here, you can interact with the TAs, work with your classmates, and discuss the homework.
2. Interact with Prof. Huang. Her "Interactive Conversation" time (or office hours) is on **Thursday from 2-3 pm in MRL 258**, or by appointment.
3. You may wish to get additional help at the Center for Academic Resources in Engineering (CARE), which provides workshops, tutoring, and more for students in engineering. http://care.engineering.illinois.edu/

ACCOMMODATIONS: To obtain disability-related academic adjustments and/or aids, students should contact the course instructor and the Disability Resources and Educational Services (DRES) as soon as possible. To contact DRES, you may visit 1207 S. Oak St., Champaign, e-mail disability@illinois.edu, or go to the DRES website. If you are concerned you have a disability related condition that is impacting your academic progress, academic screening appointments are available on campus that can help diagnose a disability.

For circumstances such as extended illness, family emergencies, or religious observances that conflict with or make it difficult for you to keep up with coursework, you should contact Professor Huang via e-mail as soon as possible to discuss options. In these cases, I encourage you to reach out to the Dean of Students office, which can help you contact and manage accommodations with all of your courses. For religious observances, you can request accommodations at https://odos.illinois.edu/community-of-care/resources/students/religious-observances/.

ACADEMIC INTEGRITY: Honesty and integrity are fundamental to our community. Guidelines for academic integrity are detailed in Article 1, Part 4 of the Illinois Student Code. Any confirmed violations of that code will be taken seriously and may result in failure for the course. Ignorance is not an excuse for any academic dishonesty. It is your responsibility to read this policy to avoid any misunderstanding. Do not hesitate to ask the instructor(s) if you are ever in doubt about what constitutes plagiarism, cheating, or any other breach of academic integrity.

INCLUSIVITY STATEMENT: The effectiveness of this course is dependent upon each of us to create a safe and encouraging learning environment that allows for the open exchange of ideas while also ensuring equitable opportunities and respect for all of us. Everyone is expected to help establish and maintain an environment where students, staff, and faculty can contribute without fear of personal ridicule, or intolerant or offensive language. If you witness or experience racism, discrimination, micro-aggressions, or other offensive behavior, you are encouraged to bring this to the attention of the course director if you feel comfortable. You can also report these behaviors to the Bias Assessment and Response Team (BART) (https://bart.illinois.edu/). Based on your report, BART members will follow up and reach out to students to make sure they have the support they need to be healthy and safe. If the reported behavior also violates university policy, staff in the Office for Student Conflict Resolution may respond as well and will take appropriate action.

UNAUTHORIZED RECORDING OR POSTING OF CLASSROOM CONTENT: Recording material from in this course, including lectures, discussions or other activities is forbidden. Sharing recorded material or posting it online is also forbidden. Similarly, problem sets, quizzes, and problem set solutions should not be posted or shared online. Any violation of these policies will be forwarded to the Office of Student Conflict Resolution for disciplinary action.