INTRODUCTION TO MATERIALS SCIENCE AND ENGINEERING

INSTRUCTOR: Prof. Pinshane Huang (email: pyhuang@illinois.edu)
COURSE TIMES: 12:30–1:50 pm, Tuesday and Thursday (Central Standard Time)
LOCATION: 114 Transportation Building
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.

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.

TEXTBOOK: William D. Callister Jr. and David G. Rethwisch, " Materials Science and Engineering, an Introduction", Plenum Press, New York, 10th Edition, 2020. 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.

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.

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.