MIE 302: Mechanical Engineering Laboratory I (Spring 2022)

Instructor

Prof. <PROF_FIRST_NAME> <PROF_LAST_NAME> (<PROF_EMAIL>) – Wed lecture; Lab sections on W-F

Office Hours: by appointment

Prof. <PROF_FIRST_NAME> <PROF_LAST_NAME> (<PROF_EMAIL>) – Lab sections on M and Tu

Office Hours: by appointment

Graduate TAs

<TA_FIRST_NAME> <TA_LAST_NAME> (<TA_EMAIL>)
Lab sections: Monday and Tuesday
Office hours: by appointment

<TA_FIRST_NAME> <TA_LAST_NAME> (<TA_EMAIL>)
Lab sections: Wednesday and Thursday
Office hours: by appointment

<TA_FIRST_NAME> <TA_LAST_NAME> (<TA_EMAIL>)
Lab sections: Friday
Office hours: by appointment

Lectures: Wednesday 11:15AM-12:05PM
Hasbrouck Lab Room 126

Laboratory: Gunness Laboratory, Room 19

Website:
Microsoft Teams: Join the team using this code: **<CODE>**
Moodle: <LINK_MOODLE>

Course Description: Important mechanical properties of materials engineering such as yield strength and fracture toughness experimentally investigated with a view towards materials selection and design. Skills emphasized: experimental technique, statistical analysis of data, and report writing. Prerequisites: MIE 201, 211 and 273. ENGIN 351 (ENGIN 351 may be taken concurrently).

Textbook: *None*. MIE 201 (Callister), MIE 211 (Beer), and MIE 273 textbooks will be used as references.

Course Format

- **Lectures** on Wednesday will provide the requisite background for the experiment to be performed in the following week(s).

- **Labs:**
  - Each lab session will accommodate **twelve students** working in randomly assigned **groups of three**. Individual workstations are spaced sufficiently far apart to allow for social distancing; *please respect each other's personal space.*
  - Lab groups will be assigned at the start of the semester and stay fixed thereafter. Any conflicts of interest that require reorganizing groups should be brought to my attention during the first week of classes.
  - Each student must maintain a lab notebook in which pre-lab calculations and experimental data must be neatly recorded. You will need to process a significant amount of data and write reports after completing experiments. Hence, it is critical that you keep legible and detailed lab notes. You can either maintain a hard-copy or an electronic notebook, as convenient.
  - Pre-lab calculations must be **independent** work and will be turned in as a hardcopy at the beginning of each lab. You are *strongly* encouraged to keep a copy of your pre-lab calculations handy, as you will need to refer to these during the lab.
  - For Labs 1, 3, and 5, each group will submit a memo with pertinent tables, figures, and data analysis. These group memos are due when you come to the next lab session. A memo template is provided on ***Teams*** and must be used.
  - For Labs 2 and 4, each student will submit a report with pertinent tables, figures, and data analysis. These reports must be independent work. Templates are provided on ***Teams*** and must be used. See specific due dates on course calendar. Generally, all reports (online submission via Teams) are due at least one weeks after performing the lab.

Laboratory Exercises and Schedule:

Lab 1: Hardness testing
Lab 2: Tensile testing
Lab 3: Fracture mechanics
Lab 4: Ductile-brittle transition
Lab 5: Strain gauges

Each lab exercise spans two weeks to limit occupancy in the lab space; your group will only come once to the lab to perform the experiment.

- With the exception of health-related reasons – if you are unwell, please stay home and inform the instructor! – there is no provision to reschedule or make-up labs.

Grading Scheme:

- *Pre-lab notes*: **10%** (equal weights for all labs)
- *Lab Quizzes*: **15%** (equal weights for all labs, **including syllabus quiz**)
- *Lab Memos/Reports*: **55%**
  - Lab 1: 6% — *group memo*
  - Lab 2: 20% — *individual report*
  - Lab 3: 6% — *group memo*
  - Lab 4: 15% — *individual report*
  - Lab 5: 8% — *group memo*
- *End-of-term Quiz*: **20**% (in class)

Course Policies:

- **SAFETY FIRST!**
- **You must follow all COVID-19 protocols mandated by the University as well as any other health and safety instructions specific to this course.**
  - Wear face masks (face shields) always while in the lab.
  - Sanitize your hands before touching instruments, computers, and lab equipment.
  - Wipe down all instruments, computers, and lab equipment before and after use.
- Please use the provided safety equipment and follow all instructions from lab personnel (Instructor/TAs/Technician). If you are found operating lab machines without safety equipment or disregarding instructions, you will be asked to leave the lab and assigned a zero for that lab exercise (pre-lab/memo/discussion). Repeat violations (>1) result in an F for the course.
- **You may not wear open-toed footwear in the lab.**
- **Please secure any loose hair or clothing when operating the machines.**
- **Food and drink may not be brought into the lab.**

Lab Policies:

- **Absences:** An unapproved absence will result in a zero for the quiz & memo. More than one unapproved absence will automatically result in an "F" grade for the course.
- **Punctuality:** The lab quiz (10 minutes) will be given at the start of each session. To avoid disturbing students, students arriving late will have to wait outside the lab and miss the quiz thus, earning a zero. Under no circumstances is a late arrival of over 15 minutes acceptable, i.e., you will not be allowed to perform the lab and automatically assigned a zero for the lab quiz & memo.

Late Work: All memos are due by specific dates listed on the course calendar. As there is ample time provided for completing the memos, *late submissions will not be accepted*.

Academic Honesty Statement:
Maintaining the integrity of scholarship and research within institutions of higher education requires a cultural commitment. All members of the UMass Amherst community are expected to be knowledgeable of and uphold our academic honesty policies (https://www.umass.edu/honesty/). Academic dishonesty includes but is not limited to cheating, fabrication, plagiarism, and *abetting or facilitating* dishonesty. Instructors are requested to take reasonable steps to address academic misconduct, and appropriate sanctions may be imposed on any student who has committed an act of academic dishonesty. Any person who has reason to believe that a fellow student has committed academic dishonesty should bring such information to the attention of the appropriate course instructor or an alternate, trusted member of the faculty or College administration as soon as possible. Instances of academic dishonesty not related to a specific course should be brought to the attention of the appropriate department Head or Chair. Community members may fill out the College's classroom experience form (<LINK >) to report academic dishonesty anonymously. Since students are expected to be familiar with this policy and the commonly accepted standards of academic integrity, ignorance of such standards is not normally sufficient evidence of lack of intent.

Cheating and Plagiarism Policy:

- The University Academic Honesty Policy Applies in this and all courses. This policy can be found on the University Web Page (https://www.umass.edu/honesty/). Appendix B covers plagiarism, cheating, fabrication, and facilitating dishonesty. Students are expected to be familiar with the definitions and examples provided.
- All types of behaviors violating academic honesty policy, particularly plagiarism or data fabrication, will be reported to the Academic Honesty Office.
- *I reserve the right to conduct oral exams of any submitted student work to verify whose work was submitted. If you fail the oral exam, you will earn a zero on the assignment.*
- **Plagiarism or data fabrication will result in an F for the course.** If in doubt, please consult me *before* turning in an assignment on what is fair use.

Accessibility Support Services:
Your success in this class is important to me. We all learn differently and bring different strengths and needs to the class. The University of Massachusetts Amherst is committed to making reasonable, effective and appropriate accommodations to meet the needs of all students and help create a barrier-free campus. If you have a qualifying disability and require accommodations while participating in this course, please work with Disability Services to have an accommodation letter sent to me in a timely manner. If you have a disability but are not yet affiliated with Disability Services, please register with Disability Services (https://www.umass.edu/disability/students). Information on services and materials for registering are also available on their website www.umass.edu/disability.

If you are eligible for exam accommodations, your exams will be administered by the exam proctoring center. Contact Disability Services immediately, and comply with their exam scheduling policies, including the requirement that you book your exams at least seven days in advance of the exam date. *It is incumbent upon you contact me during the first few weeks of the semester, or shortly following registration with Disability Services, to ensure that your accommodations are being sufficiently met, including extra time and note-taking access, as applicable.*

Finally, beyond disability accommodations, if there are aspects of the course that prevent you from being fully included in the class, please let me know as soon as possible. Together we'll develop strategies to meet both your needs and the requirements of the course.

I require you contact me during the first 2 weeks of the semester to ensure that your accommodations are being sufficiently met including extra time and notetaking access as applicable.

Health and Wellbeing:
You are not alone at UMass – many people care about your wellbeing and many resources are available to help you thrive and succeed. The College recognizes that coursework is challenging and that classes are not the only demand in your life. Success in this course and the College of Engineering depends heavily on your personal health and wellbeing. Recognize that while stress is an expected part of the college experience, it can be compounded by unexpected

setbacks or life changes outside the classroom. Strive to reframe challenges as an unavoidable pathway to success. Reflect on your role in taking care of yourself throughout the term, before the demands of exams and projects reach their peak. Please feel free to reach out to me about any difficulty you may be having that may impact your performance as soon as it occurs and before it becomes too overwhelming.

You can learn about the confidential mental health services available on campus by calling the Center for Counseling and Psychological Health (CCPH) by visiting their website at umass.edu/counseling. Check-out some of their great, NEW free resources. There are many other resources on campus for students facing personal, financial or life challenges to find support, stay in school, and graduate (https://www.umass.edu/studentlife/single-stop). Within the College, you may reach out to myself, your academic advisor, the Office of Student Affairs (http://engineering.umass.edu/current-students/academics-advising) or the Office of Diversity, Equity, and Inclusion (<EMAIL>). I encourage you to contact support services on campus that stand ready to assist you. Remember that as your instructor, I am here to help you find the resources you need.

Inclusivity:
Everyone should feel that they are an integral part of the community and that all individuals and their perspectives are respected. A diversity of perspective and experience provides a valuable source of ideas, problem solving strategies, and engineering creativity. If you feel that your contribution is not being valued or respected for any reason, please speak with me privately. If you wish to communicate with someone else in the College or University, there are several ways to do so anonymously or to provide contact information if you so choose:

1. Notify the University Diversity, Equity, and Inclusion Office through the "Report a Climate Incident" form: <LINK>
   Note that this form requires sharing name and contact information.
2. Speak with Assistant Dean Dr. <NAME> (<EMAIL>).
3. Report an incident anonymously to the College of Engineering Diversity, Equity, and Inclusion Office
   - Climate Concerns and Suggestions - <LINK >
   - Classroom Experience - <LINK>
4. Reach out to the departmental DEI Committee

- Reach out to a member of the MIE committee. See member list here: <LINK>

We are all members of an academic community with a shared responsibility to cultivate a climate where all individuals are valued and where both they and their ideas are treated with respect.

Pronouns and Names:
Everyone has the right to be addressed by the name and pronouns that they use for themselves. Students can indicate their preferred/chosen first name and pronouns on SPIRE, which appear on class rosters. Please let me know what name and pronouns I should use for you if they are not on the roster. A student's chosen name and pronouns are to be respected at all times in the classroom. To learn more, please see this resource:

https://www.umass.edu/stonewall/sites/default/files/pronouns_intro.pdf

Gender Respect and Title IX:
The University of Massachusetts Amherst aspires to be a university environment that is free of discrimination, sexual harassment, and sexual violence. Faculty have the responsibility to inform students of resources and reporting options. If you or someone you know has experienced sexual assault, sexual misconduct, or sexual discrimination please see https://www.umass.edu/titleix/what-to-do for information about resources and reporting options. A report to the Title IX Coordinator may be made at any time (including during non-business hours) by using the Title IX Coordinator's email (<EMAIL>), telephone number (<PHONE>) or mail. UMass Amherst is committed to supporting community members who report concerns of prohibited conduct. Please reach out to me if you would like assistance connecting with any of these resources/options.