Instructor: Professor Phillip Messersmith
Office: 218 Hearst Memorial Mining Building
Office Hours: 1-2 pm Monday, 11-12am Tuesday, or by appointment.

GSIs: Peyman Delparastan (delparastan@berkeley.edu) Office Hrs: 2-3pm Mon; 1-2pm Wed
Martin Siron (martin.siron@berkeley.edu) Office Hrs: 11-12am Wed; 1-2pm Thursday
All GSI office hours will be in 348 or 350 HMMB.

Summary of Office Hours and Locations:

	M	T	W	T	F
Messersmith	1-2 pm 218 HMMB	11-12 am 218 HMMB			
Delparastan	2-3 pm 350 HMMB		1-2 pm 350 HMMB		
Siron			11-12 am 350 HMMB	1-2 pm 348 HMMB	

Meeting Times for Lab 0 and All Discussions (All in 350 HMMB)					
Section	**M**	**T**	**W**	**T**	**F**
101		8-9 am			
102		4-5 pm			
103			2-3 pm		
104				4-5 pm	

Meeting Times for Labs 1-6 (All in 230 HMMB)					
Section	**M**	**T**	**W**	**T**	**F**
101		8-11 am			
102		2-5 pm			
103			2-5 pm		
104				2-5 pm	

Course Website: bCourses

Description: This 1-unit course consists of one (1) laboratory safety training/ethics session, six (6) 3-hour laboratory experiences occurring every other week taught by GSIs and Laboratory Staff and overseen by the lead instructor, and six (6) 1-hour mandatory lecture/discussion sessions (occurring the week prior to each laboratory experience) in which fundamental information about the laboratory experiments will be discussed.

Textbook: (Optional) W.D. Callister, Jr. & D. G. Rethwisch, Materials Science and Engineering an Introduction, 10th Edition, Wiley (2018). This is the textbook for the MAT SCI 45. It is not required for the lab but may be a useful resource.

Objectives: The objectives of this course are to provide undergraduate engineering and science students hands-on experiences in foundational materials science topics and to serve as a practical extension to the lecture-based course MAT SCI 45 – Properties of Materials. MAT SCI 45 provides broad coverage of the field for non-majors who may not be able to take another course in materials science & engineering, and it serves as the introductory course in the major field, laying the foundation for understanding the relationship between the internal structure of matter and the properties of materials that make them attractive for engineering applications. This course will apply these basic principles in a laboratory setting while providing practical experience in writing, ethics, and other skill sets.

Connection to MAT SCI 45: MAT SCI 45L augments the topics of the MAT SCI 45 lecture class with hands-on practical experiences. Students taking MAT SCI 45 are not required to take MAT SCI 45L, but those taking MAT SCI 45L must have already completed or be taking MAT SCI 45 concurrently.

SD Card: An SD card for storing and transferring photos is helpful but not mandatory. In the absence of an SD card you can take photos using a cellphone camera.

Grading Policy: Ethics Assignment: 10%
Lab Reports: 75%
Attendance and Participation: 15%

Ethics Assignment: "Lab 0" includes a lecture on ethics and will include a written report of an ethics case study. More details will be provided at the first lab meeting.

Lab Reports: The labs involve teamwork for collecting data, but the reports are not a team exercise. Every student submits their own laboratory report based on data collected by their team. Lab reports must be completed following the guidelines outlined in the **Laboratory Guide** and the manuals for the individual labs (available online). Reports are to be submitted electronically through bCourses and are due 1 week after the beginning of your laboratory session. Example: laboratory section 102 reports will be due online by 2:00PM the following Tuesday. **I will drop your lowest score among lab reports 1-6, although you are required to attend the lecture/discussion and lab section even if you submit no report for that lab. You cannot drop the Ethics (Lab 0) report.**

Attendance and Participation: Attendance is essential to your success in this class and will account for 10% of your grade. To get the full points you must attend all lectures and labs. Each unexcused absence at either lecture/discussion or lab session will reduce your course grade by one letter. Example: if your overall performance otherwise merits an "A" grade but you have one unexcused absence, you will receive a "B" grade.

Late Assignments
No late assignments will be accepted except for a few circumstances. Valid excuses include, but are not limited to, deaths in the family, jury duty, hospitalization for illness, etc. Non-valid excuses include, but are not limited to, oversleeping, "my printer didn't work," "I wasn't here when you assigned it," "my internet service at home is out so I could not submit my assignment online", etc.

Re-grading Policy
1. Re-grade requests must be submitted to the responsible GSI within one week of score posting.
2. Students are required to submit a written request with the following information:
    - Student Name and ID
    - A detailed written description of what you have done and why you think it merits a re-grade, using complete sentences, punctuation and no SMS/social media abbreviations. LOL! THX!
    - Simple fixes such as addition errors will be corrected immediately.
    - Note that a request for a regrade does not guarantee a change in grade, and that re-grading may uncover previously undetected errors on other problems that could lower or increase your grade further.
    - Appeals of the results of GSI re-grading can be made to Professor Messersmith, who will make a final decision.

Academic Code of Conduct
This course has a "zero-tolerance" policy concerning cheating and plagiarism. Students are referred to the University of California, Berkeley Student Code of Conduct for complete details on expectations. Special attention should be given to Section V and Appendix II. Cheating and plagiarism will be dealt with according to established campus policy. Students caught cheating will receive a failing grade and a report to the Center for Student Conduct will be filed. The following is a partial list of common cheating/plagiarism situations to avoid:

1. Attempts to "doctor" or manipulate assignments after grading to enhance scores will be considered academic dishonesty and dealt with as described above.
2. Submitting the same work as another student in MAT SCI 45L.
3. Partial or full replication of lab reports from students that have previously taken the course.

Lab Schedule (subject to change)

Each section will be staffed by a primary GSI (D=Delparastan; S=Siron) who is responsible for grading laboratory reports and providing an introductory lecture, and a secondary GSI who assists with safety and staffing of experimental stations.

Refer to the *Laboratory Guide* and *Laboratory Manuals* on bCourses for descriptions of each lab exercise. Each laboratory has a manual that must be read before coming to class.

Week	Lab	Assignments Due
Jan 20-24	Lab 0: Ethics (PBM)	
Jan 27-31	Laboratory Safety; Lab 1 Discussion: Hardness (S)	Lab 0 (Ethics) Report
Feb 3-7	Lab 1 Hardness (S)	
Feb 10-14	Lab 2 Discussion: Recovery/Recrystallization/Grain Growth (D)	Lab 1 Report
Feb 17-21	Lab 2 Recovery/Recrystallization/Grain Growth (D)	
Feb 24-28	Lab 3 Discussion: Binary Phase Diagram (S)	Lab 2 Report
Mar 2-6	Lab 3 Binary Phase Diagram (S)	
Mar 9-13	Lab 4 Discussion: Heat Treatment of Steel (D)	Lab 3 Report
Mar 16-20	Lab 4 Heat Treatment of Steel (D)	
Mar 23-27	Spring Break	
Mar 30-Apr 3	Lab 5 Discussion: Characterization of Polymers (S)	Lab 4 Report
Apr 6-10	Lab 5 Characterization of Polymers (S)	
Apr 13-17	Lab 6 Discussion: Mechanical Properties of Metals (D)	Lab 5 Report
Apr 20-24	Lab 6 Mechanical Properties of Metals (D)	
Apr 27-May 1		Lab 6 Report