

Prof. David Cahill
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course homepage: <http://users.mrl.uiuc.edu/cahill/308/matse308.html>
office hours: Monday, Tuesday, Wednesday, 10:00–11:00, and by appointment.
instructor: John Bukowski, bukowski@illinois.edu
teaching assistants: David Baker, Robert Smith, Michael Chiang, Tian Li, Lita de la Rama

SCHEDULE AND LOCATION: Lectures meet Tuesday and Thursday 1–1:50 in 119 MSEB. Labs meet in the Kiln House, 2–4:50. Lab sections will meet the first week of class to divide the students into three groups and into teams of 2 students. The lab experiments will begin the week of January 25. The first three labs will run for 6 weeks and then we will pause for one week (the week of March 8) so that the instructors can prepare the next set of labs. The labs will then run for another 6 weeks; the last week of lab is the week of April 26.

OBJECTIVES: Your goal as a student in this course should be to advance your understanding and skills in materials science, experimental methods, data acquisition and analysis, presentation of data, error analysis, and written communication.

PREREQUISITES: Credit or concurrent registration MSE 304, 307, 401, 402, 406.

NO EXAMS; NO QUIZZES; NO FINAL.

HOMEWORK: Problem sets drawn from the required text will be assigned the first few weeks of the semester. The problem sets will be due in class one week after they are assigned; problem set assignments will be posted at the course homepage. Solutions will be posted at the Compass site. A penalty of 10% per day (linear, not exponential decay) will be subtracted if problem sets are turned in late.

LABORATORY: You will work in groups of two; each student should keep their own laboratory notebook and each student will turn in their own report laboratory report. Each experiment will extend over 2 weeks. The final laboratory report will be due in the laboratory one week after the completion of each lab. The TAs will return the graded reports one week later. We will not do re-writes this semester. Grades will be determined by the clarity and completeness of the written descriptions (experimental approach, results, discussion, error analysis); the clarity and completeness of the figures (schematics of the experiment, raw data, analysis of data, summaries and comparisons of results, error analysis); and the depth and accuracy of your analysis. You are strongly encouraged to use Origin or some other scientific software for preparing figures. (Creating a high-quality plot of data in a business application such as Excel can be challenging.) A penalty of 10% per day will be taken off for late lab reports.

GRADING: The following weighting factors will be used to determine your final grade:

six lab reports 94 %

problem sets 6 %

Grades will be assigned using the following scale:

A⁺=98-100%, A=93-97%, A⁻=90-92%

B⁺=88-90%, B=83-87%, B⁻=80-82%

C⁺=78-80%, C=73-77%, C⁻=70-72%

D⁺=68-70%, D=63-67%, D⁻=60-62%

E<60%

At my discretion, the minimum score to earn a certain letter grade may be lowered but it will not be raised.

TEXT: "An Introduction to Error Analysis" by J. Taylor (University Science Books, 1996). Additional reading will be assigned from the required textbooks for MSE 304 and MSE 406; sections of other texts will be posted at the Compass site.

SUPPLIES: You should bring with you to lab sessions a notebook, a USB memory stick for transferring data, and comfortable safety glasses.