Prof. David Cahill  
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course homepage: http://users.mrl.uiuc.edu/cahill/582/matse582.html  
office hours: Tuesday, Thursday 10:30–12:00, and by appointment.

SCHEDULE AND LOCATION: Lectures meet Tuesday and Thursday, 9:00–10:20 in 214 Materials Science and Engineering Building. Location and time of make-up lectures to-be-announced.

OBJECTIVES: Your goal as a student in this course should be to understand the fundamentals of surface structures, vacuum techniques, surface sensitive characterization tools, thermodynamics of crystal surfaces, and the kinetics of adsorption, and mass transport.

QUIZZES: I will give a quiz every Thursday. (No quiz on Sept. 4 and since I will be out-of-town on Sept. 11 and 19, the quizzes normally scheduled for those days will be given on Sept. 16 and 23.) I will not give hour exams or a final exam. You can bring a single-sheet (one side of 8.5 × 11 inch paper) of notes to help you with the quiz.

HOMEWORK: Homework problems will be assigned each Tuesday beginning Sept. 2; most will be taken from the textbook. I will not collect or grade the homework problems. We will discuss the solutions to the homework (if needed) in class the following Tuesday.

CURRENT LITERATURE: Each week, we will discuss a paper published recently in a high profile journal. Please read the assigned paper before coming to lecture and turn in a brief summary of i) the scientific or technological motivation for the research; ii) the intellectual merit of the work within its discipline; and iii) the broader impact of the work on other fields of science and technology.

WIKIPEDIA ARTICLES: You will complete two contributions to Wikipedia for this course. The due dates are Oct. 21 and Dec. 9. The equivalent page length should be approximately 6 pages of double-spaced 12 point font, excluding figures and references. The first article will emphasize an experimental technique; the second paper, an aspect of the thermodynamics (or equilibrium properties) of crystal surfaces; or an aspect of kinetic processes on surfaces. You will, of course, need to be concise and your topics should be focused. Please communicate with me about appropriate topics, the audience, and technical level for these articles.
GRADING: The following weighting factors will be used to determine your final grade:

current literature 10 %
quizzes 20 %
1st article 35%
2nd article: 35 %

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: “Surface Science, an Introduction” by K. Oura et al. (Springer, Berlin, 2003). The assigned reading should be completed before the week indicated on the classroom schedule so that you will be prepared to discuss the readings in class.

September 2, 2008