

Bioengineering 592, 492
Chemical Engineering 558, 458

Spring, 2007, v 3

Surface Analysis

Class Schedule

Instructor: Buddy D. Ratner, Ph.D.

Wednesday & Friday, 12:30-1:50 Rm 117 Benson Hall

Lecture Schedule

Mar 28	Class Ground Rules and Introduction to Surface Analysis
Mar 30	Surfaces – Why are they Special? (Homework #1)
Apr 4	Real world surfaces & Energy interactions with matter
Apr 6	Vacuum systems – (Homework #1 due)
Apr 11	revolution in physics; ESCA theory samples for class project due)
Apr 13	ESCA instrumentation (video lecture)
Apr 18	ESCA - spectral interpretation (homework #2)
Apr 20	Visit to ESCA lab (B3) and project: surface modification (BNS 231)
Apr 25	ESCA quantification and ESCA applications (polymers) (Homework #2 due)
May 2	Auger Spectroscopy / Ions and Surfaces (ISS, RBS, Dynamic SIMS)
May 4	Static SIMS
May 9	Scanning tunneling microscopy (STM), atomic force microscopy (AFM), and other proximal probe methods (Dr. J Hull)
May 11	Presentations on class group project (written reports due) (Receive take-home exam based, in part, on “surf mod” project)
May 16	Contact angles
May 18	Vibrational/optical spectroscopies (IR, SERS, IETS, EELS, SPR, SFG) (Midterm due)
May 23	Roughness/Texture/Depth profiling
May 25	Multitechnique analysis – case studies (Term paper due May 25)
May 30	NEXAFS and synchrotron methods (Prof. Lara Gamble)
Jun 1	Microelectronics applications / Perspectives/ New techniques/ New applications

Final Exam during scheduled time, final exam week

T.A. Chris Barnes (cabarnes@u.washington.edu)

Surface Analysis Class WEB page: <http://staff.washington.edu/cabarnes>

Office hours for Dr. Ratner: (Foege 330J), office phone 685-1005) (make an appointment)

e-mail: RATNER@UWEB.ENGR.WASHINGTON.EDU