

ELECTROCHEMICAL ENGINEERING

ChemE 461

Wednesday Lecture/Labs, 2:30–5:20 p.m., BNS 215

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Electrochemical Engineering is mainly a laboratory course, with one three hour lab and one lecture per week. Grades will be determined from three Lab Reports (30%, 30%, 20%) and one oral project presentation (20%). The recommended text is *Electrochemical Methods (EM)* by Allan Bard and Larry Faulkner. Outlined below are the topics that will be covered, the reading that corresponds to each topic, and the experiments that serve to reinforce each topic. The course schedule is given on the next page.

See handouts and other class materials on the web at: http://courses.washington.edu/dtsclass/Chem_E_461.htm

ELECTROCHEMICAL SCIENCE							ENGINEERING TECHNOLOGIES
Topic of Study	Basic concepts	Cell thermodynamics	Electro-chem. pot'l	Kinetics, surface over-potentials	Mass transfer concepts	Rotating Electrodes	<ul style="list-style-type: none"> •Electrodeposited nanostructures •Batteries •Electrochromism •Cesium “Dirty” Bomb detection •Finite element simulations •Fuel Cells •Student conceived projects
Reading from <i>EM</i>	§1.1, 1.3, 1.4	§2.1	§2.2.4, 2.2.5	§3.1–3.4	§2.3.3, Chpt. 4, §5.2.1,	§9.1-9.4	Handouts and published literature found in campus libraries
Experiment	All	1A	1A	1B	1A–C	1C	2 and 3