

Fall 2002  
Dr. J. Abramson

## Physics 490/590

Cellular and Molecular Biophysics  
Office - SB1 - Room 330, Phone:725-3014

Class meets - Tues, Thurs: 10:00-11:50AM, UCB 308A

<u>Date</u>	<u>Topic</u>
10/1/02- 10/3	Introduction - Membranes Lipids - Structure
10/8 -10/10	Stable structures, Membrane Fluidity, sidedness Membrane thickness - diffraction techniques
10/15- 10/17	Proteins - Amino Acid Composition Extrinsic, Intrinsic, Functions Cells - Size Constraints; Eukaryotes vs Prokaryotes, Organelles
10/22- 10/24	Techniques - Biophysical and Biochemical, Electrical Properties of a Membrane Resistance and Capacitance
10/28- 10/31	Diffusion - Fick's 1st law, Continuity Equation <b>Midterm Exam</b>
11/5- 11/7	Fick's 2nd law Electrochemical Potentials, Nernst Equation and Goldman Eqn., Membrane Potentials
11/12- 11/14	Osmotic Effects
11/19- 11/21	Carrier Mediated transport and Active Transport Obligatory exchange - the $\text{Na}^+/\text{Ca}^{2+}$ Exchange protein
11/26- 11/28	Signal Transduction - Action Potentials Thanksgiving – University Closed
12/3- 12/5	Muscle Contraction - Excitation-Contraction Coupling
12/10	10:15AM – 12:05 PM ** Final Exam **

Grade is based on Midterm, Final and Oral Presentation  
Office Hours - 2:30-3:30PM, Tuesday, SB1 - Room 330  
e-mail: [abramsonj@pdx.edu](mailto:abramsonj@pdx.edu)