

# EASTERN NAZARENE COLLEGE

## PY 301 Modern Physics I Spring 2008

### Daily Class Schedule

Date	Topics	Reading Assignment Chapter and Sections
January 30	Course Introduction	
<b>Module One: The Theory of Special Relativity</b>		
February 1	Background and Basic Concepts	1.1, 1.2, 1.4
4	Consequences of Special Relativity	1.3, 1.5
6	Lorentz Transformation and Examples	1.6, 1.7
8	Relativistic Momentum and Energy	2.1, 2.2, 2.4
11	Elementary Particles	2.3 (15.1, 15.2, 15.3)
13	The General Theory of Relativity	2.5
<b>Module Two: The Quantum Theory of Light</b>		
February 15	Blackbody Radiation	3.1, 3.2
18	Planck's Theory	3.3
20	Photoelectric Effect	3.4
22	Compton Effect, Wave-Particle Complementarity	3.6, 3.7
<b>March 29</b>	<b>Exam#1</b> covering Modules One and Two	
<b>Module Three: The Particle Nature of Matter</b>		
February 25	The Composition of Matter	4.1, 2.2
27	Rutherford Model of the Atom	4.3
March 3	The Bohr Atom	4.4, 4.5
<b>Module Four: Matter Waves</b>		
March 5	de Broglie Waves	5.1, 5.2
7	The Heisenberg Uncertainty Principle	5.3, 5.4
March 10	<b>Spring Break</b> - March 7, 5:00 PM - March 17, 8:00AM	
17	The Wave-Particle Duality	5.5, 5.6, 5.7
19	Fourier Series	5.3 and hand-out
March 20	<b>Easter Break</b> – March 20, 5:00PM – March 25, 8:00AM	
March 26	Fourier Transform and Wave Packets	
<b>Module Five: Quantum Mechanics</b>		
March 28	Schroedinger's Equation	6.1, 6.2, 6.3
31	The Infinite Square Well	6.4, 6.5
April 2	The Quantum Oscillator	6.6
4	Expectation Values	6.7, 6.8
7	The Square Barrier	7.1, 7.2, Essay, page 187
April 16	<b>Exam #2</b> covering Modules Three, Four, and Five	

		<b>Module Six: Real World Quantum Mechanics</b>	
April	9	Particle in a Three-Dimensional Box	8.1, 8.2
	11	Hydrogen Atom I	8.2, 8.3
	14	Hydrogen Atom II	8.4
		<b>Module Seven: Multi-Electron Atoms and Molecules</b>	
April	18	The Spinning Electron	9.1, 9.2
	21	Multi-Electron Atoms	9.3, 9.4
	23	The Periodic Table	9.5, 9.6
	25	Bonding in Molecules	11.1, 11.2, 11.3, 11.4
		<b>Module Eight: Statistics and Solids</b>	
April	28	Classical and Quantum Statistics	10.2, 10.3
	30	Fermi-Dirac Statistics	10.4
	2	Classical and Quantum Theory of Metals	12.1, 12.2, 12.3
	5	Semiconductor	12.4, 12.5
	9	Semiconductor Devices	
May	7	<b>Exam #3</b> covering Modules Six, Seven, and Eight	
May	14	<b>Final Exam at 8:00am in S-16</b>	

Have a Great Summer!