

WINTHROP UNIVERSITY
PHYS 212 Course Syllabus
Department of Chemistry, Physics, & Geology

Day of the week	Date	Chapters	Topics	Assignments
Mon	Jan 7	16.1-16.3	Characteristics of Sound, Intensity of sound,	
Wed	Jan 9	16.4-16.7	sources of sound, interference of sound waves Doppler Effect,	
Fri	Jan 11	17.1-17.3	Temperature: Atomic theory of matter, temperature, thermal equilibrium; 0 th Law of thermodynamics	
Wed	Jan 17	19.1-19.3	Heat as Energy transfer, specific heat	HW1
Fri	Jan 19	19.4-19.7	Calorimetry, Latent heat, 1 st Law of thermodynamics	
Mon	Jan 22	21.1-21.4	Static Electricity; Electric Charge and Its Conservation Dipoles Electric Flux –Gauss’s Law –Applications of Gauss’s Law Electric Field Electric Charge in the Atom –Insulators and Conductors Induced Charge;	
Wed	Jan 24	21.5-21.8	Coulomb’s Law –The Electric Field Calculations for Continuous Charge Distributions –Field Lines	HW2
Fri	Jan 26	21.9-21.11	Electric Fields and Conductors- Motion of a Charged Particle in an Electric Field – Electric Dipoles	
Mon	Jan 29	22.1-22.4	Electric Flux, Gauss Law, applications of Gauss Law	
Wed	Jan 31	23.1-23.4	Electric Potential Energy and Potential Difference- Relation between Electric Potential and Electric Field –Electric Potential Due to Point Charges	HW3
Fri	Feb 2	23.5-23.7	Equipotential Surfaces –Electric Dipole Potential – E Determined from V	
Mon	Feb 5		Exam 1	
Wed	Feb 7	23.8, 24.1- 24.2	Electrostatic Potential Energy; the Electron Volt- Cathode Ray Tube: TV and Computer, Capacitors – Determination of Capacitance	
Fri	Feb 9	24.3-24.5	Capacitors in Series and Parallel – Electric Energy Storage –Dielectrics	
Mon	Feb 12	25.1-25.3	The Electric Battery –Electric Current –Ohm’s Law Resistance and Resistors	
Wed	Feb 14	25.4-25.6	Resistivity –Electric Power-Power in Household Circuits	HW4

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Fri	Feb 16	25.7-25.9	Alternating Current Microscopic View of Electric Current: Current Density and Drift Velocity	
Mon	Feb 19	26.1-26.3	EMF and Terminal Voltage-Resistors in Series and in Parallel-Kirchoff's Rules-	
Wed	Feb 21	26.4-26.7	EMFs in Series and in Parallel; Charging a Battery, Circuits Containing Resistor and Capacitor (RC Circuits)-Electric Hazards	HW5
Fri	Feb 23	27.1-27.3	Magnets and Magnetic Fields-Electric Currents Produce Magnetic Fields- Force on an Electric Current in a Magnetic Field; Definition of B	
Mon	Feb 26		Exam 2	
Wed	Feb 28		Force on an Electric Charge Moving in a Magnetic Field Torque on a Current Loop; Magnetic Dipole Moment	
Fri	March 2	27.4-27.5	Loud Speakers, Discovery and Properties of the Electron- The Hall Effect, Mass spectrometers	
Mon	March 5	28.1-28.4	Magnetic Field Due to a Straight Wire- Force between Two Parallel Wires- Definitions of the Ampere and the Coulomb-Ampere's Law	
Wed	March 7	28.5-28.7	Magnetic Field of a Solenoid and a Toroid- Biot-Savart Law-Magnetic materials-Ferromagnetism	HW6
Fri	March 9	28.8,29.1-29.3	Solenoids- Induced EMF- Faraday's Law of Induction; Lenz's Law	
Mon	March 19	29.4-29.6	EMF Induced in a Moving Conductor- Electric Generators Back-EMF and Counter Torque; Eddy Currents, Transformers and Transmission of Power	
Wed	March 21	29.7-29.8	A Changing Magnetic Flux Produces an Electric Field-Applications of Induction: Sound Systems, Computer Memory, Seismograph	HW7
Fri	March 23	30.1-30.3	Mutual Inductance- Self-Inductance-Energy Stored in a Magnetic Field	
Mon	March 26		Exam 3	
Wed	March 28	30.4-30.8	LR Circuits, LC Circuits and Electromagnetic Oscillations- LC Oscillations with Resistance (LRC Circuit)-AC Circuits with AC Source-LRC Series AC Circuit	
Fri	March 30	31.1-31.4	Changing Electric Fields Produce Magnetic Fields; Ampere's Law and Displacement Current-Gauss's Law for Magnetism- Maxwell's Equations- Production of Electromagnetic Waves	

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Mon	April 2	31.6, 32.1-32.3	Light as an Electromagnetic Wave. The Ray Model of Light-Reflection; Image Formation by a Plane Mirror Formation of Images by Spherical Mirrors,	
Wed	April 4	32.4-32.7	Index of refraction, Refraction: Snell's Law Visible Spectrum and Dispersion, Total Internal Reflection	HW8
Fri	April 6	33.1-33.4	Ray Tracing-The Thin Lens Equation; Magnification-Combinations of Lenses-Lens maker's Equation	
Mon	April 9	34.1-34.3	Waves Versus Particles; Huygens' Principle and Diffraction- Huygens' Principle and the Law of Refraction- Interference	
Wed	April 11	34.4-34.5	Young's Double-Slit Experiment- Intensity in the Double-Slit Interference Pattern-Interference in Thin Films	HW9
Fri	April 13	35.1-35.3	Diffraction by a single slit- Double Slit Diffraction	
Mon	April 16	35.6-35.7	Resolution limits, Diffraction Grating	
Wed	April 18	37.2-37.3	Photons and Photoelectric Effect -Models of the atom	HW10
Fri	April 20	37.4, 37.10-37.11	Compton effect, Bohr Model	
Mon	April 23		Lab Final Exam	
Thursday	April 26	Section 11:00am	Final Exam 8:00am	
Monday	April 30	Section 9:30am	Final Exam 11:30am	