

Tentative Schedule for Physics 335.01 Fall 2024

Date	Information	Event Information
Week starting August 19		Course Initialization
	Partial Derivatives Worksheet	Worksheet 01
	Time Dilation Twin Paradox	Especially Simple Special Relativity Notes
		Gamma Factor vs. Beta Factor Spreadsheet
Week starting August 26	Simulations	Relative Motion: fixed , Comoving
	Time dilation, Length Contraction, Relativistic Velocity addition	Lorentz Transformations
Week starting September 02		Acceleration Transformations
	Space Time diagrams	Space-Time diagram Notes
	Simultaneity:Space - time intervals	Interactive Space-Time Spreadsheet 06
Week starting September 09		external: Interactive Space-time Diagram
		Twin Paradox and Muons
		Relativistic Doppler Shift Notes
		Classical Doppler Shift Animation
		Tabulated Results of Frank-Mary Experiment
		Relativistic Momentum
	2-D Collision in two frames	Mary and Frank Collision Frank's Frame : Mary's Frame
		Relativistic Energy Derivations
		Worksheet 02
Lab 01	The "Oh my God!" particle (backup)	Lab 01: Speed of Light Derivation Spreadsheet Calculator
(approximate date given here)	Test 1	September 11, 2024
Week starting September 16	Modern Physics timeline	Selected Topics from Chapter 3 e/m measurement determination of e Line spectra Photoelectric effect
		Millikan Oil Drop Experiment
		JJ Thompson Nobel Prize site From AIP
		Mass Spectrometer

Week starting September 23	E over M calculator	Lab 02: Charge to Mass Ratio of the Electron Lab
		Images :Electron Beam E over M Experiment
		Wave Particle Duality
	Blackbody radiation Java Applets	BlackBody Radiation Notes Image from RPI
	Electromagnetic Spectrum Chart	
Week starting September 30	Photoelectric Effect Spreadsheet	L03:Photoelectric Effect Notes: lab : Java Simulation
		James Clerk Maxwell (1831-1879) Robert Bunsen (1811-1899) JJ Balmer (1825-1898) JJ Thompson (1856-1940) Ernest Rutherford (1871-1937) Niels Bohr (1885-1962) Prince Louis-Victor de Broglie (1892-1987) Albert Einstein (1879(Ulm)-1955) Leucippus of Miletus (480BC-420BC)
Week starting October 02	Elemental Discharge Spectra Another link	Discharge Spectra Classification
		Lab 04: Spectral Discharge
	Bohr Model Java applets:	Bohr Model Worksheet and solutions
	Thompson model Java Applet	Rutherford Scattering : Java applets
	Lab 05: Frank Hertz Experiment	x-ray and electron diffraction
	1924	De Broglie Waves
	Nobel Prize Site for Davisson and his lecture	
	1914 : NP 1925 James Franck (1882 -1964) N Franck Hertz Simulations a: requires shockwave b: under java (German) Another link Experiment Notes [P] Gustav Hertz (1887 -1975) N (nephew of Heinrich Hertz)	Franck Hertz Simulations a: requires shockwave b: under java (German) Another link Experiment Notes [P]Week
Week starting October 07		
	Elemental Discharge Spectra	Discharge Spectra Classification

	Nobel Prize Site	
	1914 : NP 1925 James Franck (1882 -1964) N Gustav Hertz (1887 -1975) N (nephew of Heinrich Hertz)	Franck Hertz Simulations a: requires shockwave b: under java (German) Experiment Notes [P]
	Lab 05: Frank Hertz Spreadsheet	An example of screen capture from Franck Hertz experiment
(approximate date given here)	Test 2	October 9, 2024
Week starting October 14		Wave Motion Notes
	animations	Superposition of waves (beat formation)
		Co-moving Observer
		Moving Spreading Gaussian Wave packet
		Spreading Wavepacket with cars
		Slinky: Longitudinal Pulse :Collision Transverse Pulse: Collision
		Harmonic Traveling Wave on an Infinite String : 001 and Spooky
	Java Applet (External)	Fourier Synthesis for Sound
Week starting October 21		Quantum Mechanics Notes 01
		1D Quantum Square Well Wave Functions
		1D QM square well java applet
		Mixed State 1D Quantum Square Well Wave Functions:2,3 : 2,4 : 3,5
		Quantum Mechanics Notes 02
Week starting October 28		QM Worksheet
	The "Halloween" operator :)	
		Rectangular Barriers
	Quantum Wave Functions	Quantum SHO [W :O: P]: sloped square well
	They make really nice movies here	Wave functions extrodinare
		3D Quantum Square Well
		3D Square Well Spreadsheet
Week starting November 04	Useful Page	QM solution for the Hydrogen Atom
		Magnetic Effects
		Probability Distribution Functions

		Total Angular Momentum
		How to use circles to show addition of angular momentum
	Health Physics Society	
Week starting November 11	IAEA	Nuclear Physics 01 [P]
		Nuclear Physics 02 [P]
		Decay Scheme
	Miscellaneous topics from Modern Physics	Stopping of radiation by physics text
(approximate date given here)	Test 3	November 13, 2024
Week starting November 18	Miscellaneous topics from Modern Physics	
		Information on Moe Berg
Week starting December 02	Miscellaneous Topics / Classical Gravitation	
Friday December 06	Last Day of Classes	labs not accepted after this day