

Class	Date	Topics:
		Special relativity
1.	W 18 Jan	Experimental basis of SR, Einstein's postulates
2.	F 20 Jan	Simultaneity and Lorentz transformations
3.	M 23 Jan	Time dilation and length contraction
4.	W 25 Jan	Minkowski's spacetime diagrams
5.	F 27 Jan	Spacetime interval and metric
6.	M 30 Jan	Paradoxes of special relativity
7.	W 1 Feb	Relativistic momentum and energy
8.	F 3 Feb	Mass/energy conversion; antiparticles
9.	M 6 Feb	Remarks on general relativity
		Principles of quantum physics
10.	W 8 Feb	Quantization of charge and energy
11.	F 10 Feb	Black body radiation
12.	M 13 Feb	The photoelectric and Compton effects
13.	W 15 Feb	Rutherford and the atomic nucleus
14.	F 17 Feb	Bohr's model of the atom
15.	M 20 Feb	De Broglie's hypothesis and wave/particle duality
16.	W 22 Feb	Wave packets
17.	F 24 Feb	Uncertainty principle; probability amplitudes
18.	M 27 Feb	First midterm exam covering sessions 1–15
19.	W 1 Mar	Schrödinger's equation in 1 dimension
20.	F 3 Mar	Particle in an infinite square potential well
	4–12 Mar	Spring recess
21.	M 13 Mar	Particle in a finite square potential well
22.	W 15 Mar	Expectation values and operators
23.	F 17 Mar	Simple harmonic oscillator; symmetries
24.	M 20 Mar	Reflection and transmission in collisions
25.	W 22 Mar	Barrier penetration and tunneling
		Fundamentals of atomic and subatomic physics
26.	F 24 Mar	Schrödinger's equation in 3 dimensions
27.	M 27 Mar	Hydrogen atom wavefunctions; angular momentum
28.	W 29 Mar	Electron spin; the Stern–Gerlach experiment
29.	F 31 Mar	Fine structure in H; Pauli exclusion principle
30.	M 3 Apr	Spectroscopic notation; periodic table of elements
31.	W 5 Apr	Basic nuclear properties; the deuteron
32.	F 7 Apr	Nuclear binding, structure and stability
33.	M 10 Apr	Nuclear reactions, synthesis; applications
34.	W 12 Apr	Fundamental interactions and classification of particles
35.	F 14 Apr	Second midterm exam focused on sessions 16–30
36.	M 17 Apr	Conservation laws and symmetries
37.	W 19 Apr	The Standard Model: a new table of elements
38.	F 21 Apr	Matter at extremely short length scale
39.	M 24 Apr	Beyond the Standard Model
40.	W 26 Apr	Early universe and stellar evolution
41.	F 28 Apr	On gravitation and cosmology
42.	M 1 May	Review
	F 5 May	9:00–12:00 Final exam covering sessions 1–42