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textbook - "Modern Quantum Mechanics", 2nd edition, J.J. Sakurai and J.J. Napolitano
Final exam date TBD, Most likely it will be a take home exam.

PHYS 5321 Quantum Mechanics
Formal structure of quantum mechanics, Schrödinger theory and applications to soluble systems, angular momentum and rotation matrices.

We will cover at least the material in chapters 1 and 2 of our book. This consists in developing the bra-ket and matrix notation for abstract vector spaces and a study of quantum dynamics. The third chapter deals with angular momentum and we will try to get as far as possible into it. The schedule below optimistically assumes we will get through most of chapter 3.

Grades will be based on two midterm exams and the final exam. These will be take home exams. Exams will cover the material we discussed in class and not material which we have not yet reached. Recommended homework from Sakurai is below. Unfortunately, I can not use the problems from Sakurai as a component of the grade. These solutions are everywhere on the internet. There may be independently assigned homework during the semester that can be included in the grade.
Approximate grading scheme: midterm exams 20% each, final exam 40% to 60% depending on HW assigned up to 20%.

Lecture	date	Sections in Sakurai	Recommended problems
1	08/25/20	1.1, Stern-Gerlach experiment, L1.1.pdf	4
2	08/27/20	1.2, Kets, Bras, Operators, L1.2.pdf , HW1	5, 8
3	09/01/20	1.3, 1.4, Base kets, Matrix representation, L1.3.4.pdf matrices.operators.pdf	10, 15, HW2
4	09/03/20	1.4, Observables, Uncertainty relations, L1.4.pdf	16,18
5	09/08/20	1.5, 1.6, Basis change, L1.5.6.pdf	23, 22
6	09/10/20	1.6, Position, Momentum, Translation, L1.6A.pdf L1.6B.pdf	28, 29
7	09/15/20	1.7, Wave functions in position and momentum space functions.of.operators.pdf L1.7.pdf	30, 33
8	09/17/20	2.1, Time evolution and Schrödinger equation, L2.1.pdf	1, 4
9	09/22/20	2.1, 2.2, Schrödinger vs Heisenberg picture, L2.1.2.pdf	7
10	09/24/20	2.2, Schrödinger vs Heisenberg picture, midterm1 distributed L2.2.pdf	9
11	09/29/20	2.3, Simple Harmonic Oscillator, L2.3.pdf	11 HW3
12	10/01/20	2.4, Schrödinger wave equation, midterm1 collected L2.4.pdf	14
13	10/06/20	2.5, Elementary solutions Schrödinger wave equation L2.5A, neutron bounce	16
14	10/08/20	2.5, L2.5B	17, 18

15	10/13/20	2.5, 2.6. Propagators L2.5.6	19, 22,
16	10/15/20	2.6, Feynman Path Integrals L2.6.7.pdf	25, 27
17	10/20/20	2.7, Potentials and Gauge transformations	30, 31
18	10/22/20	2.7,	33, 36
19	10/27/20	2.7	37
20	10/29/20	3.1, 3.2 Angular Momentum Commutators, midterm2 distributed	1
21	11/03/20	3.2 Spin ½, Finite rotations	2, 5
22	11/05/20	3.3, 3.4, SO(3), SU(2), Euler rotations, midterm2 collected	9
23	11/10/20	3.4 Density operators, Ensembles	10, 14
24	11/12/20	3.4, 3.5 Eigen states of angular momentum	15, 16
25	11/17/20	3.5, 3.6 Orbital Angular momentum	18, 19
26	11/19/20	3.6, 3.7 Schrödinger equation Central potentials	20
		Fall Break, no classes	22
27	12/01/20	3.8 Addition of angular momentum	23
28	12/03/20	3.8 Addition of angular momentum	24, 28
29	12/08/20	3.10 Spin correlations, Bell's inequality	32
30	12/10/20	3.11 Tensor operators	33