

OPTI 570 Fall 2023 Schedule (version 1)

This is the intended schedule, but is subject to changes if necessary.

Day	2023 Date		TOPIC	CT reading prior to class	PS due (on campus)	PS due (distance)
T	22-Aug		overview of the course, key concepts in QM			
W	23-Aug		DISCUSSION SECTION			
Th	24-Aug		function space, state space, Dirac notation	II A, B	1	
T	29-Aug		representations in state space, QM formalism	II C,D, comps B,C-II		1
W	30-Aug		DISCUSSION SECTION - PS2			
Th	31-Aug		position and momentum representation	II E, F, comp E-II	2	
T	5-Sep		formalism recap, postulates of QM	III A,B,C		2
W	6-Sep		DISCUSSION SECTION - PS3			
Th	7-Sep		consequences of postulates; wavepackets 1	III D,E, comps F,G-III	3	
T	12-Sep		wavepacket example - part 2	V A, B (read to get ahead)		3
W	13-Sep		DISCUSSION SECTION - PS4, Practice Problems			
Th	14-Sep		quantum harmonic oscillator - set up	V C, D	4	
T	19-Sep		quantum HO - 2 - energy eigenstates			4
W	20-Sep	EXAM 1: 5-7pm	Covers all material through Sep 12 lecture & PS 4			
Th	21-Sep		quantum HO - 3 - energy eigenstates	comp E-V		
T	26-Sep		coherent states 1	comp G-V		
W	27-Sep		DISCUSSION SECTION - PS5			
Th	28-Sep		coherent states 2		5	
T	3-Oct		atom trapping with lasers	VI A-D		5
W	4-Oct		DISCUSSION SECTION - PS6			
Th	5-Oct		atom trapping, coherent state examples	IV A,B comp A-IV	6	
T	10-Oct		angular momentum in QM	IV-C		6
W	11-Oct		DISCUSSION SECTION - PS7 (Practice exam)			
Th	12-Oct		orbital and spin angular momentum	comp E-III, comp E-IV	7	
T	17-Oct	EXAM 2: Wed 5-7pm	spin-1/2 problem			7
W	18-Oct	OR take home this week. TBD	Covers all material through Oct 5 lecture & PS 7			
Th	19-Oct		2-level systems, Bloch vector	comp B-VI, comp A-IX		
T	24-Oct		dynamics of 2-level systems			
W	25-Oct		DISCUSSION SECTION - PS8			
Th	26-Oct		spinless hydrogen	VII	8	
T	31-Oct		addition of ang mom., clebsch-gordan coefficients	X-A,B,C		8
W	1-Nov		DISCUSSION SECTION - PS9			
Th	2-Nov		atomic structure	not in CT	9	
T	7-Nov		stationary PT, non-degenerate PT	XI-A,B		9
W	8-Nov		DISCUSSION SECTION - PS10			
Th	9-Nov		non-degenerate and degenerate SPT	XI-C	10	
T	14-Nov		SPT - examples. Fine structure of hydrogen	comp A-XI		10
W	15-Nov	EXAM 3: 5-7pm	Covers all material through Nov 2 lecture & PS 10			
Th	16-Nov		fine structure of H	XII A,B		
M	21-Nov	Monday help session?	DISCUSSION SECTION ? TBD - PS11			
T	21-Nov		time-dependent perturbation theory	XII C,D,E	11	
W	22-Nov		NO DISCUSSION or OFFICE HOURS TODAY			
Th	23-Nov		THANKSGIVING HOLIDAY - NO CLASS			
T	28-Nov		Time-dependent perturbation theory	XIII A,B,C		11
W	29-Nov		DISCUSSION SECTION - PS12			
Th	30-Nov		TDPT examples		12	
T	5-Dec	last day of OPTI 570	Finish lecture material, open discussion/review			12
W	6-Dec		LAST HELP SESSION			
TBD	TBD	EXAM	Take home exam, details TBD			