	TENTATIVE SCHEDULE FOR PHYSICS 410, Spring 2013					
Date	**Mtg.#**	**Reading Assignment**	**Topic**	**HW Due**	**Exams**	
Week 1						
1/23	1	1	Introduction, conceptual review of mechanics			
1/25	2	1	Math review, vector equations etc.	#0		
Week 2						
1/28	3	2	Drag			
1/30	4	2	Analytical solutions for projectile motion			
2/1	5	2	Charged particle in B, E fields	#1		
Week 3						
2/4	6	3	Rockets, center of mass			
2/6	7	3	Angular momentum, moment of inertia			
2/8	8	4	Impulse, work, kientic, and potential energy	#2		
Week 4						
2/11	9	4	Potential energy functions			
2/13	10	4	Energy conservation and applications, damped oscillators			
2/15	11	5	Driven damped oscillators, resonance	#3		
Week 5						
2/18	12	5	Frequency domain analysis and applications			
2/20	13	9	Apparent forces in accelerating and rotating frames			
2/22	14	9	Tides	#4		
Week 6						
2/25	15	6	Euler-Lagrange equation			
2/27	16	1-5, 9	Review			
3/1	17		**Chapters 1-5, 9 (roughly)**		**EXAM #1**	
Week 7						
3/4	18	6	The brachistochrone			
3/6	19	7	Lagrange's Equations; basic applications			
3/8	20	7	More applications of Lagrange's equations	#5		
Week 8						
3/11	21	7	Lagrangian problem solving			
3/13	22	7	Constraints and conservation laws			
3/15	23	8	Equivalnet one-dimensional problem	#6		
SPRING BREAK 17-24 MARCH						
3/25	24	8	Conservation of angualr momentum and orbits			
3/27	25	8	All about orbits			
3/29	26	14: Collision Theory	Impact parameter and scattering angle	#7		
Week 10						
4/1	27	14	Total and differential cross sections; Rutherford scattering			
4/3	28	13: Hamiltonian Mechanics	Hamilton's equations			
4/5	29		**Chapters 6-8, 14**		**EXAM #2**	
Week 11						
4/8	30	13	Applications of Hamiltonian mechanics, Review			
4/10	31	13	Hamiltonian dynamics			
4/12	32	10: Rotational Motion of Rigid Bodies	Total angular momentum; rotation about a fixed axis	#8		
Week 12						
4/15	33	10	The moment-of-inertia tensor			
4/17	34	10	Principal axes; precession of a top			
4/19	35	11: Coupled Oscillators	Linear examples; coupled modes	#9		
Week 13						
4/22	36	11	The double pendulum and other examples			
4/24	37	12: Nonlinear Dynamics and Chaos	Period doubling; chaos			
4/26	38	12	State-space orbits and Poincare sections	#10		
Week 14						
4/29	39	12				
5/1	40	15: Relativity	Postualtes; time dilation; length contraction			
5/3	41	15	Spacetime diagrams; Lorentz transformation	#11		
Week 15						
5/6	42	15	Electrodynamics and relativity			
5/8	43		Review and discussion			
5/14	44		**FINAL EXAM [8 AM to 10 AM]**		**FINAL EXAM**	