Schedule for Chemistry 8541 "Dynamics" Fall 2017

11:15–12:30 Mon Fri (Fri. 9/8/2016 – Mon. 12/11/2016) 283 Kolthoff

Textbooks:
McQuarrie: "Mathematical Methods for Scientists and Engineers" (chapters 1-11, 14-17, 20)
Taylor: "Classical Mechanics" (chapters 1-14)

Material to be studied prior to each class:

Mondays		Fridays	
9- 4	*Labor Day – no class*	9-8	Introduction and organization
9-11	McQuarrie 1 and 2: functions, series	9-15	Taylor 1: Newton's laws
9-18	McQuarrie 3 and 4: special and complex functions	9-22	Taylor 2: trajectories
9-25	McQuarrie 5: vectors	9-29	Taylor 3: momentum and angular momentum
10- 2	McQuarrie 6: many-dimensional functions	10- 6	Taylor 4: energy
10-9	McQuarrie 7: vector calculus	10-13	Taylor 5: oscillations
10-16	McQuarrie 8: curvilinear coordinates	10-20	Taylor 6 and McQuarrie 20: calculus of variations
10-23	McQuarrie 9: linear algebra	10-27	Taylor 7: the glory of classical mechanics: Lagrange's equations
10-30	McQuarrie 10: matrix analysis	11- 3	Taylor 8: spherically symmetric potentials
11-6	McQuarrie 11: ODEs	11-10	Taylor 9: noninertial frames
11-13	Taylor 10: rigid rotation	11-17	Taylor 11: normal modes
11-20	Taylor 12: nonlinear mechanics	11-24	*holiday – no class*
11-27	Taylor 13: Hamiltonian mechanics	12- 1	Taylor 14: collisions and cross sections
12- 4	McQuarrie 14 and 15: orthogonal bases	12-8	McQuarrie 16: PDEs
12-11	McQuarrie 17: integral transforms (*final class*)		