Introduction to Nuclear Science (NUSC-342)

Week	Date	Lecture Type	Topic	Homework
1	Tue Jan 6	Lecture	Introduction, Mathematical Concepts, Examples	
	Thu Jan 8	Lecture+Tutorial	Physics Concepts and related exercises	WA1
2	Tue Jan 13	Lecture	The discovery of the atomic nucleus and Rutherford Scattering	
	Thu Jan 15	Lecture+Tutorial	The Hydrogen atom: from Bohr to Schroedinger and Heisenberg	WA2
3	Tue Jan 20	Lecture	The Hydrogen atom: quantum mechanical treatment	
	Thu Jan 22	Lecture+Tutorial	Spin and Magnetic Moment	WA3
4	Tue Jan 27	Lecture	Nuclear properties: mass, isotopes and isotope separation	
	Thu Jan 29	Lecture+Tutorial	Conservation laws in classical and quantum mechanics	WA4
5	Tue Feb 3	Lecture	The nuclear two-body force	
	Thu Feb 5	Exam	Midterm 1	
6	Tue Feb 10	Reading Break: no class		
	Thu Feb 12	Reading Break: no class		
7	Tue Feb 17	Lecture	Masses and binding energies: the liquid drop model	
	Thu Feb 19	Lecture+Tutorial	The Fermi gas model and the sigle-particle shell model	WA5
8	Tue Feb 24	Lecture	Nuclear magnetic moment and spin, multi-nucleon shell model configurations	
	Thu Feb 26	Lecture+Tutorial	Nuclear Radii	WA6
9	Tue Mar 3	Lecture	Quadrupole moments, deformed shell model	
	Thu Mar 5	Lecture+Tutorial	Collective model, rotations and vibrations	WA7
10	Tue Mar 10	Lecture	Shell Model	
	Thu Mar 12	Lecture+Tutorial	Nilsson Model / Radioactive Decays	WA8
11	Tue Mar 17	Review	Alpha Decay	
	Thu Mar 19	Lecture+Tutorial	Midterm 2	
12	Tue Mar 24	Lecture	Beta Decay	
	Thu Mar 26	Lecture+Tutorial	Other Decays and Nuclear Fission	WA9
13	Tue Mar 31	Lecture	Principles of Nuclear power	
	Thu Apr 2	Lecture+Tutorial	Nuclear Reactors	WA10
14	Tue Apr 7	Lecture	Nuclear Astrophysics	
	Thu Apr 9	Lecture+Tutorial	Review before final exam	