

# Course Syllabus and Reading Assignments for Physics 3341, Fall 2014

Date	Subject	Chapters in Reif	Supplementary material
Aug 27	No class		
Aug 29	Introduction		
Sep 1	Labor Day		
Sep 3	Probabilities and Random Walks	1.0-1.5	
Sep 4	Discussion Section		
Sep 5	Central Limit Theorem	1.6-1.11	
Sep 8	Microcanonical Ensemble	2.0-2.4	
Sep 10	Ergodicity part 1		Read "Building blocks..."
Sep 11	Discussion Section		
Sep 12	Ergodicity part 2 & Chris Henley Symposium		
Sep 15	Counting Microstates	2.5	
Sep 17	Interactions between systems	2.6-2.11	
Sep 18	Discussion Section		
Sep 19	Temperature and Entropy	3.0-3.5	
Sep 22	Quasi Static Processes	3.6-3.12	
Sep 24	Heat Capacity	4.0-4.7	
Sep 25	Discussion Section		
Sep 26	Thermodynamics: ideal gas	5.0-5.4	
Sep 29	Heat Engine & Cohen Physics Colloquium	5.11-5.12, 5.5-5.6	
Oct 1	Maxwell relations	5.7-5.10	
Oct 2	Liquid Vapor Phase Transition (class)	8.0-8.6	
Oct 3	Chemical Potential	8.7-8.10	
Oct 6	Discussion Section instead of class	Quiz	
Oct 8	Discontinuous Phase Transitions (Yariv)		Chap 11 Bowley
Oct 9	Discussion Section		
Oct 10	Continuous Phase Transitions (Yariv)		Chap 12 Bowley,
Oct 11-14	Fall break		
Oct 15	Order Parameters & Critical Phenomena (Yariv)		Chap 12 Bowley
Oct 16	Discussion Section (Review)		
Oct 17	First Prelim (Yariv)		Finish Diverse world of LQ
Oct 20	Canonical and Grand Canonical Ensembles	6.0-6.7,6.9	Read "The three ensembles"
Oct 22	Gibbs Paradox	7.0-7.4	
Oct 23	Discussion Section		
Oct 24	Equipartition theorem	7.5-7.7	
Oct 27	Kinetic Theory of Gases	7.9-7.13	
Oct 29	Polyatomic Molecules	9.12	

Oct 30	Discussion Section		
Oct 31	Van derWaals Gas	10.3-10.5	Read “dilute nonideal gas”
Nov 3	Law of Mass Action	8.10	
Nov 5	Magnetism, Para., Fero., Heat Capacity	6.3,7.8,10.6-7,7.7	Ising Model + Class Projects
Nov 6	Discussion Section	Possible Quiz	
Nov 7	Bose Einstein Statistics	9.0-9.6	
Nov 10	Fermi Dirac Statistics	9.7,9.8,9.16	
Nov 12	Particle in a Box (Yariv)	9.9-9.11	
Nov 13	Discussion Section	Possible Quiz	
Nov 14	Black Body Radiation (Yariv)	9.13-9.15	
Nov 17	Phonons	10.0-10.2	
Nov 19	Review		Finish “The Signal and the noise”
Nov 20	Discussion Section	Possible Quiz	
Nov 21	Second Prelim		
Nov 24	Review Exam and Work on Projects (Yariv)		
Nov 26	Class Projects		
Nov 27-29	Thanksgiving		
Dec 1	Student Project Presentations Groups 1,2		
Dec 3	Student Project Presentations Groups 3,4		
Dec 4	Student Project Presentations Groups 5,6		
Dec 5	Student Project Presentations Groups 7,8		