CHEM 582 Outline
Introduction to Statistical Thermodynamics

2. Different Thermodynamic ensembles (microcanonical, canonical, grand canonical, etc.) Maximum likelihood distributions and the partition function.
5. Fluctuations, and equivalence of different ensembles in the thermodynamic limit.
11. Chemical equilibrium from partition functions.

Optional special topics

14. Distribution functions and Liquids. The radial distribution function and relations of thermodynamic function to g(r).
15. Perturbation theories of liquids, the van der Waals equation. Barker Henderson theory.
16. Time correlation function formalism and the relation to spectroscopy.
17. Linear response theory and the fluctuation-dissipation theorem.
18. Density matrices and operator expectation values.