SYLLABUS FOR CHM 7485.

TEXT: Not mandatory but copies should be available for all.

Isaiah Shavitt and R. J Bartlett,

"Many-Body Methods in Chemistry and Physics:
MBPT and Coupled-cluster Theory"
Cambridge Molecular Science

I.   Why coupled-cluster theory?
       Extensivity. Power of exponential wavefunction.
II. Systematic development of CC tools.
        Second-quantization
        Normal Ordered Operators
        Wick's Theorem-Contractions
III. Coupled-cluster doubles Eqns.
      Algebraic Derivation
      Diagrammatic derivation

IV. CCSD Eqns.
V.   CCSDT Eqns.
      CCSD(T)
VI. Analytic Gradients and Properties
VII. Equation-of Motion CC Method for Excited States
VIII. Multi-reference Approaches.