

Introduction to PHY 855 and 955

PHY 855 - Quantum Field Theory

“Introduction to field theory as it pertains to numerous problems in particle, nuclear and condensed matter physics. Second quantization, applications to different fields based on perturbation theory. Offered first half of semester.”

PHY 955 - Relativistic Quantum Field Theory

“Theory of relativistic quantum fields and renormalization with emphasis on applications for particle physics. Offered second half of semester.”

PHY 855

Textbook: Fetter and Walecka, Quantum Theory of Many-Particle Systems.

Syllabus:

Chapter 1 - Second Quantization

Chapter 3 - Green's functions and field theory (fermions)

Chapter 4 - Fermi systems

Chapter 11 - Nuclear matter

Chapter 12 - Phonons and electrons

Grading: will be based on six graded homework assignments

Goal: We only have 7 weeks, so the goal of the course will be to understand the basic ideas.