

Physics 772/773

Quantum Field Theory

Instructor: Jason Kumar
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Class meets:
M W 11:00am-12:15pm
WAT 114
Office hours by arrangement

Recommended Textbook:
An Introduction to Quantum Field Theory
Michael Peskin and Daniel Schroeder

Supplemental Textbook: (optional)
The Quantum Theory of Fields (vol. I, II, III)
Steven Weinberg

Topics to be covered:

- Quantization of scalar and fermionic fields
- Quantization of gauge fields
- Perturbation theory and scattering
- Renormalization and quantum corrections
- Quantum electrodynamics

Grading:

The course grade will be based on homework and exams

- 60% -- homework
- 20% -- midterm
- 20% -- final

Student Learning Objectives:

- 1) introduction to the fundamental concept of quantized field theory
- 2) development of skills in computing basic cross-sections relevant to quantum electrodynamics