

# Physics 772

## Quantum Field Theory

**Instructor:** Jason Kumar  
WAT 436  
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**Class meets:**  
M W 11:00am-12:15pm  
Via Zoom (link to be sent)  
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