

Physics 330 – Quantum Field Theory I – Fall 2024

Syllabus

This course is an introduction to the concepts and methods of quantum field theory. More explicitly, the course will cover the following topics:

- Quantization of free scalar and spinor fields
- Derivation and use of Feynman diagrams
- Elementary processes of Quantum Electrodynamics
- Quantum corrections to the electron-photon interaction
- The infinities of Quantum Electrodynamics

The lectures will closely follow the textbook “An Introduction to Quantum Field Theory” by Peskin and Schroeder. A lecture-by-lecture schedule of the course can be found at

<https://www.slac.stanford.edu/~mpeskin/Physics330/> .

Lecture notes, problem sets, and solutions will be posted at that web site. Many other useful quantum field theory textbooks are also linked at that site.

The CA’s for the course will be Andrew McEntaggart and Sungyeon Yang. Their contact information is posted at the web site above.

Please note that, around the end of September, for reasons beyond my control, the URL for this website will change to

<https://s3df.slac.stanford.edu/people/mpeskin/Physics330/> .

If you have any questions about the course or would like to get in touch with me for any other reason, please email me at: mpeskin@slac.stanford.edu.

— Michael Peskin