Quantum Mechanics 662, Spring 2014

Lectures: Mondays and Wednesdays from 3:30pm to 4:45pm in room PHYS234.

Instructor: Martin Kruczenski, e-mail: markru@purdue.edu, Office: PHYS274.

Textbook: “An Introduction to Quantum Field Theory” by M. Peskin and D. Schroeder. Lecture notes can be downloaded from the course webpage as the course progresses. Many good books are available and contain the same material

Course Webpage: http://web.ics.purdue.edu/~markru/

Homework: Every other week selected problems from the textbook are given as homework. The deadline is one week after the problems are given. Homework is not graded but will be checked to give feedback.

Exams: No exams.

Final grading: Final grade is based on certain 4 or 5 extra homework problems given along the course. Those problems are more difficult than the regular homework.

Contents of the course

The intention is to go over parts I and II of the book. Since that’s a lot of material, some topics will be left for homework and others will be skipped. That means we include

Ch. 2 Klein-Gordon (scalar) field

Ch. 3 Dirac field.

Ch. 4 Interacting fields and Feynman diagrams.

Chs. 5,6,7 Selected calculations, dimensional regularization.

Ch. 9 Functional methods.

Chs. 10,11,12 Selected topics on renormalization.