

Course Syllabus for Phys 518

Koç University, Spring 2017

Course Title: Quantized Field Theories II

Instructor: Ali Mostafazadeh (Office: SCI-154, Tuesdays & Thursdays: 14:30-15:30)

Textbooks:

1. M. Srednicki, “Quantum Field Theory” (Cambridge University Press, 2007)
2. M. D. Schwartz, “Quantum Field Theory and the Standard Model” (Cambridge University Press, 2014)

Website: Visit <http://home.ku.edu.tr/~amostafazadeh/> and follow the link [Teaching](#) and then [Phys 518](#).

Content: This is the second of a two-semester course on Quantum Field Theory in which we plan to cover most of the material of Parts I and II of Srednicki’s book, namely the quantum theory of spin zero (scalar) and spin half (spinor) fields. Schwartz’s book will be used to provide supplementary reading material and suitable exercise problems.

Aim and Outcomes: To provide a basic working knowledge of methods of quantum field theory. A successful completion of this course should provide the necessary background for the study of the applications of quantum field theory in condensed matter and higher energy (particle) physics.

Prerequisite: Phys 517 or consent of the instructor.

Attendance & Bonus: Students are advised to attend all the lectures. n bonus points will be added to the final exam grade, if the student attends $n+15$ lectures.

Evaluation method: Students’ progress will be evaluated according to their performance in the homework assignments, and the midterm and final exams. There will be six homework assignments each contributing as 10% to the total grade in this course. The midterm and final exams will contribute as 15% and 25%, respectively. The final will be a take-home exam.

Homework Assignments: The students must not collaborate in solving the homework problems, nor they are allowed to look up solutions prepared by others. They may discuss the possible approaches to a solution without giving any details in writing. Homework papers should be handed directly to the instructor before the specified due date and time. Late homeworks are accepted, but there will be a 10 points grade deduction (out of 100) for each day passed the due date.

Make-ups: The final exam will serve as the make-up for the midterm exam. A make-up exam will be given to the students who miss the final exam and have a valid excuse (i.e., a medical report or an official memo from one of the deans explaining their situation). The date and time of this exam will be determined by the registrar. The make-up exam may not include any of the homework problems.

Auditing Students: In order to get an AU, a student must attend at least 20 lectures.

Suggested Method of Study: Students are advised to study the subjects covered in class immediately after the lectures. Reading the lecture notes and the textbooks is necessary for grasping the subject, but it is by no means sufficient. Students must try to reproduce all the results derived in class and work out the homework problems. They are expected to spend an average of three hours per week on studying the material covered in class in addition to the time needed for working out the homework problems.