**Syllabus for Phys.624**
**Introductory Quantum Field Theory**
**Fall, 2005**

**Dr. R. N. Mohapatra**

Text Book: "Quantum Field Theory" by F. Mandl and G. Shaw (John Wiley)

" A First Book of Quantum Field Theory" by P. B. Pal and A. Lahiri (CRC Press)

Topics to be covered are Chapters 1-13 of Mandl and Shaw or Ch. 1 to 14 from Pal and Lahiri. After a discussion of preliminaries, I cover canonical quantization of scalar, spin half and vector fields, Noether's theorem and symmetries, Interaction picture and Feynman rules for perturbative calculation of physical processes, Renormalization, spontaneous symmetry breaking and introduction to gauge field theories.

I will mostly follow the Pal -Lahiri book but will heavily consult the Mandl-SDhaw book as well as other books in the market. There will be two midterm exams: Oct. 12, Nov. 21(tentative) and a final exam on the date in the college schedule i.e. December 20, 8-10:AM.

There will be homework assignments every week. They will be collected the following week, same day it was assigned. The final grades will be based on all homeworks and the tests.

My office hours are wednesday and Friday 2-3; at other times, (except Tuesday and Thursdays) I will be available with appointment. Do take advantage of the office hours. Quantum Field Theory is a completely new language, although the basic rules are that of Quantum mechanics; knowledge of QFT is essential in all fields of theoretical physics. So you will need help in thoroughly assimilating the rules and techniques of this important topic.

My e-mail: rmohapat@physics.umd.edu My Office: Rm 4124; Tel. 56022.

Final grade will be based on 40% from midterms, 40% from final and 20% homework.