

Course Outline

Course: Quantum Field Theory I

Instructor: Dr Alakabha Datta

Office: 209 Lewis Hall

Meeting: T-Th 11.00 am- 12.15 am at Lewis 104

Office Hours: By Appointment

Email: datta@olemiss.edu, datta@phy.olemiss.edu

Phone: (662) 915-5611

Course homepage: Check Blackboard.

Book used in course: Quantum Field Theory: Mandl and Shaw

Reference books: An Introduction to Quantum Field Theory by M. Peskin and D. Schroeder.

Quantum Field Theory by Lewis H. Ryder.

Many other books- do your own research.

FRANZ MANDL | GRAHAM SHAW

QUANTUM FIELD THEORY

SECOND EDITION

 WILEY

Course Goals: Learning basic canonical quantization of the scalar, Dirac and the electromagnetic fields. S matrix and the perturbation theory. Tree level calculation of Feynman graphs in Q.E.D.

Marking:

Homework: 75 %. Short Homework: 35 %, Regular Homework: 40 %

Final Exam: 25%

Take home Exam

An overall course average of the following percentages will guarantee the corresponding letter grade:

90% A

80% B

70% C

60% D

HW policy: There will be short homework assigned almost everyday to be turned in the next class or in less than a week's time. Longer homework will be assigned after a chapter is completed. You will have 3 weeks to complete those assignments. There is no

late homework submission unless you provide a valid reason.

Attendance: There is no attendance requirement. However, if you miss an exam or cannot turn in HW on time because of illness I will require a doctor's note. If you will away on other reasons inform me prior to your absence and get a note if applicable.

Academic Integrity: We will follow the University's policy of academic integrity (M-book). Violations of these policies will result in a failing grade and other disciplinary actions. In particular you are not allowed the use of the Instructor's Solution Manual.

COVID INFORMATION

If you need to isolate due to contracting the coronavirus at any point this semester, you should do so, and email me as soon as possible. I will work with you to help you continue your progress in the course. More information on isolation protocols can be found at <https://coronavirus.olemiss.edu/>.

Quarantines are an important tool for controlling the spread of the virus. If you need to quarantine at any point this semester, you should do so, and email me as soon as possible. In your email, state how long you expect not to attend class. I [will/will not] be able to provide recordings of class sessions, and we can work together to establish a plan for completing the necessary work. You will have access to your texts, my course slides, and our Blackboard course site. More information on quarantine protocols can be found at <https://coronavirus.olemiss.edu/>.

Students attending the virtual component of hybrid or online courses are subject to the same attendance policy and procedures as traditional students. However, participation is defined in a different manner. The University's "Attendance Policy for Online Education" states: "Student attendance in online courses is defined as active participation in the course as described in the individual course syllabus." If students fail to meet online attendance requirements as stated in the syllabus, they will be given an absence.

Students are encouraged to visit the University's Keep Learning site <https://keeplearning.olemiss.edu/> to access information and resources related to COVID-19 support. The site provides links to University student services to facilitate and support learning.

Students with diagnosed health concerns that may affect their compliance with COVID-19 health requirements should contact UM's Student Disability Services (SDS) Office <https://sds.olemiss.edu/> to see if they are eligible for an SDS accommodation as soon as possible.

The University Counseling Center is a professional facility offered by the University of Mississippi to assist students, faculty, and staff with many types of life stressors that interrupt day-to-day functioning, including the stressors associated with the COVID-19 pandemic. They offer individual counseling, couple's counseling, group counseling, stress management, crisis intervention, assessments and referrals, outreach programs, consultations, and substance abuse services. There is no fee for currently enrolled University students and everything you say to your counselor is confidential. You can contact the Counseling Center for information about mental health issues at <https://counseling.olemiss.edu>, counselg@olemiss.edu, 662-915-3784, 320 Lester Hall, and <https://www.facebook.com/universitycounselingcenterolemiss/>. You can schedule an appointment or get information about appointments by calling the UCC at 662-915-3784. Attendance Policies (Language in this section can be inserted into syllabus.) Student Support Services (Language in this section can be inserted into syllabus.) Updated Contact Information (Language in this section can be inserted into syllabus.)

The University must have accurate contact information, including cell phone numbers, to facilitate student communications and contact tracing. Students should check and update their University contact information available at <https://olemiss.edu/mystudentprofile>. □

Exams, tests, or quizzes exceeding 10% of the grade are not be given on the last three days of classes. Papers and projects (so long as due dates are in the syllabus) are allowed during these last three days, just not exams, tests, or quizzes. The Fall 2021 semester will end on Friday, Dec. 3, 2021. Thus, exams, tests, or quizzes exceeding 10% of the total grade) are not permitted on the Wednesday (Dec. 1), Thursday (Dec. 2), or Friday (Dec. 3) of that week.

All University visitors must follow COVID-19 emergency health and safety protocols.