

PHYS 7500
Classical Field Theory

Instructor: Charles Torre, SER 232, charles.torre@usu.edu

Text: *Introduction to Classical Field Theory* by Charles Torre, version 1.3. You can download this from the Canvas Files section.

Meeting times: TBA

Description:

The tentative plan of this course is to cover most of Chapters 2, 3, 5, 6, 8, 9 in the text. The topics covered include: *Klein-Gordon Field, Symmetries and Conservation Laws, Electromagnetic Field Theory, Scalar Electrodynamics, The Dirac Field, Non-Abelian Gauge Theory.*

The class will be run more or less in a “flipped” format. Students will be responsible for reading the text and working problems; the instructor will hold weekly meetings to help with difficulties in understanding the text and/or the problems.

Assessment:

The goal of this course is to help you become proficient in the fundamentals of classical field theory as represented by the topics listed above. You will acquire and demonstrate your proficiency by analyzing the following problems. If you can do these problems, you have a good understanding of basic field theory. Your grade will be determined by your performance on these problems.

Chapter 2

2.1 – 2.6

Chapter 3

3.1 – 3.6, 3.8 – 3.13

Chapter 5

5.1 – 5.10

Chapter 6

6.1 – 6.4

Chapter 8

8.2, 8.3, 8.5, 8.6, 8.8, 8.9, 8.10

Chapter 9

9.2, 9.5 – 9.14