

Physics 363

Spring Quarter 2008

H.J.Frisch HEP320 (702-7479)

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Required Texts:

1. Introduction to High Energy Physics- Perkins (Addison-Wesley)

Recommended Texts:

1. Theory of Fundamental Processes- Feynman (Benjamin)
2. The Experimental Foundations of Particle Physics (Cahn and Goldhaber) (2nd ed. out of print- 3rd ed on its way)
3. Relativistic Kinematics- Hagedorn (Benjamin)
4. Gauge Theories of the Strong, Weak, and Electromagnetic Interactions- Quigg (Addison Wesley)
5. Quarks and Leptons- Halzen and Martin (John Wiley)
6. Collider Physics- Barger and Phillips (Addison Wesley)
7. Modern Elementary Particle Physics - Kane (Addison-Wesley)
8. Gauge Theories in Particle Physics Aitchison and Hey (Adam Hilger)
9. Introduction to Elementary Particles- Griffiths

Please- if you know of other good ones or find them during the quarter tell me.

Field Trip:

We are going to visit Fermilab one day of the course. I'm proposing Wednesday April 23rd. We would leave at 11 am by bus from the Henry Moore statue, and return by 5 pm. You should bring your lunch, or you can buy it at the Fermilab cafeteria. You are welcome to bring a friend; however, I need to know how many are coming so you need to sign up.

Course Structure:

I am going to try an experiment with the course, by going back to the original literature. This will entail some substantial library work by you. The structure will be that you take one topic from the following list, and prepare a 20-25 minute talk on it, with one such talk to be given in one lecture session. Some of the topics are rich and hard enough so that a team of two of you could do two talks on just one topic. For each of these topics we (the audience) should learn (at least) about the context of the advance (e.g. what were the questions that were being addressed at the time), the experimental or theoretical technique, a good pedagogical summary of the physics, and, last but not least, what questions if any remain to be answered. I would like a one page of summary of the basics from you (each, if there's two).

There will be a problem set each week. There will be no midterm; the final will consist of a paper on one of the topics you did NOT lecture on.

The first student lectures will be on April 16th. There are a total of 16 x 2, minus the ones I give, such lectures if we go through 10th week.

Contacting me I will be available after class Wednesdays and Fridays- this is the best time to talk, and to arrange any other times. I am also available by phone at 702-7479 (work) or 955-1696 (home). Please do NOT send me email- I get too much, and it is light-weight and non-convergent. Phone is much more efficient. Email may be ignored.