

Physics 4900–MP
Topics in Mathematical Physics, Spring 2013

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It may take a few days to get it going.

Open office hours!

Meeting Time: MWF, 9:05–10:00am, Br 420. That’s when everyone wanted it.

Textbook: Nothing will be required because at press time I hadn’t decided on one *essential* book. But much will be taken from *Mathematical Methods for Physics and Engineering*, 3rd ed by Riley, Hobson and Bence. This book is now very good, very complete and very big— but not perfect! There are still some details that are missing and errors in the problems!

Some material can be found in the Schaum Vector Analysis book from Phys 2920. The Schaum Outline book on Tensors (by David Kay) covers much more than we will and could be useful. They also have one on groups.

A very good but advanced book on Group Theory and QM is that of Tinkham, now available in a nice and inexpensive Dover edition. It does not cover Lie groups, and the best introductions to those topics seem to be the books by Greiner and by Georgi, though these are grad-level.

Prerequisites: Phys 2920 and a desire to learn about more mathematical tools for physics. Applications to QM and EM will of course be given but those courses won’t be prerequisites. But if you’re not taking them.. what are you doing here?

Course requirements: 5 or 6 problem sets. (Lots of hints will be given, as usual.) At least three exams (quizzes).

Grading: 60% of grade based on the exams (quizzes). 40% from the problem sets. For the sake of completeness, I will quote percentages for which I will *guarantee* the following grades:

A: 80%–100%, B: 65%–80%, C: 50%–65%, D: 30%–50%.

but I will adjust the cutoffs downward if I see fit!

Attendance: As I was *asked* to do this class, someone needs to attend (or else tell me what we *should* do). I will try not to read books to you. Material will not come from any one book.

Topics: Special functions. Tensors. Group Theory.

The Point of All This: To gain an appreciation of the ideas behind of modern theoretical physics; to give you the *mad ninja skillz* necessary to compete in today’s physicz hood.

Students with a disability requiring accommodations should contact the Office of Disability Services (ODS). An Accommodation Request (AR) should be completed as soon as possible. The ODS is located in the Roaden University Center, Room 112; phone 372-6119.