

Junior Seminar (Phys 345)

Syllabus

Taner Edis

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1 How to Find Me

The best way to reach me is **e-mail**, edis@truman.edu. Otherwise, you can try calling my office at 785-4583, or faxing me at 785-4045.

My office hours are, Tuesdays: 10:30–11:00, 13:00–15:00, 16:30–17:00; Wednesdays: 13:30–14:30; Thursdays: 10:30–11:00, 14:30–15:00, 16:30–17:00. There's a good chance I will be around my office at other times as well. To see when I am most likely to be available, check my **typical schedule** (www2.truman.edu/~edis/courses/schedule.html).

We meet in MG 1099, 12:30 to 14:20 on Thursdays. In practice, I will almost never need the full two hours. So unless I state otherwise, our meeting time will be 13:00, not 12:30.

2 Course Description

The purpose of Physics 345 is to review the fundamental concepts in physics that constitute the knowledge base common to physics majors; to re-illuminate those ideas and skills which, though once at your command, may have since migrated to the attic of your mind; to draw connections between the various subfields in physics, so you may have some sense of unity regarding physics as a discipline. Furthermore, we will look toward your future, developing some of the skills you need as graduation approaches.

2.1 Career skills

About a quarter to a third of our time will be devoted to several activities relating to graduate school and career development. You will work on a résumé, and either a personal statement for graduate school applications or a cover letter for a job application. You will learn about career and graduate school options, and how to locate resources for learning more. You will learn about how to pursue letters of recommendation.

This will take up the first few weeks of the semester.

2.2 GRE practice

About two thirds of our time will be spent reviewing and discussing physics. Our approach to the physics review will be organized according to the various subfields that make up the standard physics curriculum: Classical Mechanics, Electricity & Magnetism, Circuits, Quantum Mechanics, Relativity, Optics, Modern Physics, Thermodynamics, etc. We will practice by solving relevant sample problems extracted from past GRE exams that will then become the basis for further discussion and review.

Please note that the review of physics that we undertake in Physics 345 is relevant to all of you, regardless of your future plans. That we base our review on multiple choice exam questions, and along the way discuss strategies for maximizing success on those exams, is also universally relevant, since *all physics majors must score at or above the 20th percentile on the Physics Major Field Achievement Test (MFAT) as a requirement for graduation*. Obviously, the focus on the GRE in this class is especially beneficial to those students who expect to continue their physics studies in a graduate program, but that fact does not reduce the importance of this class to others.

3 Grades

Grades for this course should not be a major concern. They are not connected to how well you do (or how well we think you will do) on the GRE/MFAT practice exams. If you complete all assignments on time, participate actively in class discussions, and spend a couple of hours per week outside of class working on the practice exams, you will have earned a good grade.

Grades will be based on:

- **Participatory Attendance – 45%:** You are expected to participate in class discussions and demonstrate that you are reading and working on the assigned materials. In addition, there will be one 3-hour session at the end of the course for you to practice taking a full GRE physics sample test.
- **Résumé – 10%:** You have to submit a “kitchen sink” version, a first draft, and a revised final draft.
- **Personal Statement or Cover Letter – 10%:** You have to submit a first draft and a revised final draft.
- **Letter of recommendation exercise – 5%:** You have to talk to a faculty member about a letter of recommendation.
- **Practice Exams – 30%:** You will receive a number of practice GRE/MFAT exams as homework assignments. Your grade will be based on how seriously you take the practice exams, *not* the scores you receive. (The idea is to review and identify your strengths and weaknesses.)