

Junior Seminar (Phys 345) Syllabus

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1 Basics

The best way to reach me is **e-mail**, edis@truman.edu. My office phone is 785-4583, but I don't check messages often.

My office is MG 3004, and my office hours are: Tuesdays and Thursdays: 10:30–11:45, 15:00–15:50; Wednesdays: 13:30–15:20. Check my **calendar** (edis.sites.truman.edu/schedule/) to see when might be best.

We meet in MG 1099, 15:30 to 17:20 on Wednesdays when there is no Physics Colloquium. On the seven days when there is a colloquium (January 25, February 8, 22, March 8, 22, April 5, 26), we will stop at 16:20 and move to MG 1096 for the colloquium—colloquium attendance is part of the course.

2 Course Description

Junior Seminar is for reviewing the knowledge base common to physics majors and to shake some of the rust off of physics you have half-forgotten. Furthermore, we will look toward your future, developing some of the skills you need as graduation approaches.

2.1 Career skills

The first four weeks of our time, up to and including our meeting on February 8, 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.

If you are applying for REU's during this time, you may submit materials you have put together for an REU application.

2.2 GRE practice

Starting on February 15, the rest 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. 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 others also need the review.

2.3 Colloquia

The second hour of class overlaps with the regular Physics Colloquium time. On days when there are colloquia, I will finish by 16:20 to allow us to attend. Indeed, colloquium attendance is mandatory and part of this course. The speakers I invite will be especially relevant to you, considering that thinking about graduate school and other post-graduation options is a major theme of Junior Seminar.

On days when we have no colloquium, I will often finish early.

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 practice exams. If you complete all assignments on time, participate actively in class

discussions, spend a couple of hours per week outside of class working on the practice exams, and show up for the colloquia, you will earn 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. Participation includes presence and asking questions in colloquia.
- **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.)