PROBLEM SOLVING IN PHYSICS (PHYS-5300-038)
Fall 2009

Instructors: Stefan Estreicher, Huang Juyang, Charley Myles, Mahdi Sanati, Igor Volobouev

Office Hours: Please see any of the instructors by appointment and open door

Meetings: Wed from 3pm to either 4pm or 6pm (alternating) at SCI 112

Objective: Review graduate and undergraduate core physics courses required for passing the Ph.D. Preliminary Examination (“Prelim”). Improve physics intuition and acquire solid problem solving skills.

Coverage: The subjects covered will include General Physics, Classical Dynamics, Electrodynamics, Quantum Mechanics, Thermodynamics and Statistical Physics. The course will be directed towards graduate students preparing to take the physics Prelim and will be conducted mainly as a self-study. Problem sets will be assigned but not graded.

Tests: Biweekly practice exams will be administered. The practice exams will include problems from the previously assigned sets as well as other problems with similar complexity and content. No physics textbooks or notes will be allowed during the exams. You are allowed to bring your favorite mathematics handbook which must not contain any explicit physics formulas as well as an electronic calculator without physics content. Attempt to solve all the problems (partial credit will be given).

Grading Policy: The following serves as an approximate grade scale (averaged over all practice exams)


Course Materials:
1. Problems and Solutions on Mechanics  2. Problems and Solutions on Electromagnetism

Two sets of these books will be provided to the students free of charge. It is up to you to figure out how to share them and whether to purchase additional sets. Extremely important: do your utmost to solve the assigned problems on your own before looking into the solutions!
Suggested Textbooks: Use your own favorites, familiarity with a textbook is a big plus. If you have some doubts, here is a good set which covers the contents of the TTU core curriculum:


ADA Statement: Any student who, because of a disability, may require special arrangements in order to meet course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructor's office hours. Please note instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided.