PROBLEM SOLVING IN PHYSICS (PHYS-5300-038)
Fall 2008

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Office Hours: TBA
Meetings: Mon 2:00 pm - 4:50 pm (SCI 103), Th 2:00 pm - 3:20 pm (SCI 10)

Objective: Review graduate and undergraduate core physics courses required for passing the Ph.D. qualifying examination (PQE). Improve physics intuition and acquire solid problem solving skills.

Coverage: The discussed subjects will include General Physics, Classical Mechanics, Electrodynamics, Quantum Mechanics, Thermodynamics and Statistical Physics. The course will be directed towards graduate students preparing to take physics PQE.

Homeworks: Weekly problem sets will be assigned and graded. I will expect to see the logical steps which lead to the problem solution, presented in a reasonably neat and complete manner, not just the final answer.

Tests: There will be biweekly practice exams and a comprehensive final exam. The practice exams will cover the material similar to previous homework assignments.

Grading Policy: The following weighting scheme will be used:

20% homeworks
50% practice exams
30% final exam

The following serves as an approximate grade scale:

100-80: A 79-65: B 64-50: C 49-40: D < 40: F

Course Materials: A copy of the physics problem sets should be purchased from CopyTech (Student Union Building, Room 101).

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:
Classical Mechanics: H. Goldstein, C. Poole, and J. Safko, *Classical Mechanics*, 3rd edition, Addison Wesley, 2002.

Electrodynamics: D. Griffiths, *Introduction to Electrodynamics*, 3rd edition, Prentice-Hall, 1999.
Quantum Mechanics: R. Shankar, *Principles of Quantum Mechanics*, 2nd edition, Springer, 1994.
Thermodynamics and Statistical Physics: F. Reif, *Fundamentals of Statistical and Thermal Physics*, McGraw-Hill, 1965.

Feedback: Please let me know what you think about the course. Frequent, honest, and constructive feedback will be highly appreciated. It is the best way to teach your instructor how to teach the course and to enhance your own learning experience.

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.