Instructor: Sidney Redner (321 SCI, x2618)

Office Hours: to be announced.

Course Website: physics.bu.edu/~redner/542.html. This site will be updated regularly with new homework assignments, readings, and other materials. Please check it regularly.

General: This course gives a survey of non-equilibrium statistical mechanics from the problem-solving perspective. Because the formalism of non-equilibrium statistical physics is incomplete, I believe that students can best appreciate the field by being exposed to wide-ranging and appealing examples that can be analyzed by a basic set of techniques. The topics covered should provide key ideas and core techniques to help turn students of non-equilibrium statistical physics into practitioners. For more information of the approach underlying this course, please check out the preface to the course text. The table of contents and the preface to this book are also posted on my website physics.bu.edu/~redner/toc-pref.pdf.

Text and References:


   Some reference books that could be helpful during the semester include:

2. Statistical and thermal physics, F. Reif (McGraw-Hill). A standard advanced undergraduate text for statistical mechanics. The last few chapters provide a particularly useful introduction to various aspects of non-equilibrium processes.


5. Statistical Mechanics 2nd edition, K. Huang (Wiley). Chapters 3 & 5 deal with kinetic theory and transport phenomena and are relevant for this course.


Course Organization:

Lectures: Lectures will be held on Tuesdays and Thursdays from 11:00—12:30 in SCI B58. The outline that is posted on the course website (physics.bu.edu/~redner/542.html) represents a reasonable approximation to the material that I expect to cover this semester.

Homework: Approximately 10 assignments will be handed out. While some collaboration on homework is acceptable, what is turned in should represent your personal effort.

Exams and Grading: The average of your homework scores will count approximately 40 ± 5% of the total class grade. I will give one in-class midterm exam and one in-class final exam that each will count approximately 30 ± 5% towards your total class grade.