

Version 1.4 from Nov 7, 2005

Astr 507: Astrophysics I

Željko Ivezić

University of Washington, Fall Quarter 2005

Location and Time: MW: 3:00-4:20 PAA A214

Office Hours: after class, or any other time when my office door is open

Class web site: <http://www.astro.washington.edu/ivezic/Astr507>

Tentative Class Schedule

- 1) W: Sep 28 Introduction
- 2) M: Oct 3 Review of Thermodynamics
- 3) W: Oct 5 Boltzman Distribution
- 4) M: Oct 10 Fermi-Dirac and Bose-Einstein Distributions
- 5) W: Oct 12 Saha Equation
- 6) M: Oct 17 Homework Review
- 7) W: Oct 19 Introduction to White Dwarfs and Neutron Stars
- 8) M: Oct 24 Degenerate Matter
- 9) W: Oct 26 Stroemgren spheres
- 10) M: Oct 31 Thermodynamics in the early Universe I
- 11) W: Nov 2 Thermodynamics in the early Universe II
- 12) M: Nov 7 *** Midterm Exam ***
- 13) W: Nov 9 Dust Radiative Transfer
- 14) M: Nov 14 *** no class ***
- 15) W: Nov 16 Introduction to Statistical Data Analysis
- 16) M: Nov 21 Poisson and other Distributions in Astronomy
- 17) W: Nov 23 Introduction to Bayesian Statistics
- 18) M: Nov 28 *** no class ***
- 19) W: Nov 30 *** no class ***
- 20) M: Dec 5 Introduction to Astronomical Imaging
- 21) W: Dec 7 Review

FINAL EXAM: Dec 12, 10:00-11:30 PAA A214

Required Textbook: none, handouts, any graduate level textbook on “modern astrophysics”, e.g.
R. Bowers & T. Deeming: Astrophysics (I & II), 1984, Jones and Bartlett Publishers
F. Shu: The Physics of Astrophysics, Volume I: Radiation, 1991, University Science Books
C. Hecht: Statistical Thermodynamics and Kinetic Theory, 1990, W.H. Freeman and Company
G. Rybicki & A. Lightman: Radiative Processes in Astrophysics, 1979, John Wiley & Sons
D. Sivia: Data Analysis: A Bayesian Tutorial, 1996, Oxford Science Publications
P. Gregory: Bayesian Logical Data Analysis for the Physical Sciences, 2005, Cambridge Univ. Press
R. Lupton: Statistics in Theory and Practice, 1993, Princeton Univ. Press

Additional Materials: check out the class web site

Grading: closed-book mid-term exam 30%, closed-book final exam 30%, homeworks: 40% total
key: >90%=A, >80%=B, >70%=C, >50%=D.

Notes:

Exams will be based on the material from the handouts and lecture notes.