

Astr 1020: Test 1 Study Guide

Chapter 1: Introduction

- units in astronomy
- relative size scales
- stars in current night sky

Chapter 4: Motion, energy, gravity

- speed, velocity, acceleration, mass
- Newton's 3 laws of motion
- kinetic, radiative, potential energy
- gravity, Kepler's third law of motion

Chapter 5: Light and matter

- atoms, molecules, electron transitions
- photons, wavelength, frequency, electromagnetic spectrum
- continuous, emission line, absorption line spectra
- Planck curve and temperature
- Doppler shift

Chapter 14: Sun

- properties
- interior structure
- energy from nuclear fusion, proton-proton chain, age
- solar thermostat, hydrostatic equilibrium
- moving energy out
- solar atmosphere: photosphere, chromosphere, corona, wind
- sunspots, prominences, flares
- solar wind and aurora

Chapter 15: Stars

- parallax and distance
- stellar luminosity dependence on radius and temperature
- brightness and distance, inverse square law
- magnitude scale
- thermal radiation and star color
- temperature and spectral classification
- radii from angular size and distance, CHARA Array
- masses from binary stars (visual, eclipsing, spectroscopic), Kepler's third law
- Hertzsprung-Russell diagram, components
- luminosity class and spectroscopic parallax