

Astro 105 2025 Exam I Study Guide

Topics (not exhaustive, but covers the most important material)

Absorption Spectra

Astronomy

AU

Blackbody Radiator

Blueshift

Brown Dwarfs

Chromosphere

Corona

Distance-Luminosity Relation

Distance-Magnitude Formula

Doppler Effect (and formula)

Duality of Light

Electromagnetic (EM) Spectrum

Energy (per atom) of Chemical Reactions

Energy (per atom) of Nuclear Reactions

Forces Involved in the Atom's Nucleus

Forces, in general (gravity, EM, strong, and weak)

Galileo

Giants

Hertzsprung-Russell Diagrams

Intensity of Light

Isaac Newton

James Maxwell

Kelvin and Helmholtz

Kepler's Third Law (used to find mass sum of binary)

Leptons

Luminosity (Absolute Magnitude)

Magnitude (Absolute and Apparent)

Magnitude-Distance Formula

Main-Sequence Star (and Line)

Max Planck and his Constant

Multiplying Large Numbers

Neutrino Flavors/Types (and associated particles)

Niels Bohr

Nuclear Reactions versus Chemical Reactions

Orders of Magnitude

Parallax (drawing and formula)

Photometry
Photosphere
Prefix Names (common ones)
Prominences
Proton-Proton Chain (know all the details)
Quarks
Radiation Zone and Convection Zone
Ray Davis
Red Dwarfs
Redshift
Rule for Like/Unlike Electrical Charges
Scientific Notation
Solar Intensity at Earth
Solar Neutrino Problem
Special Relativity
Spectra (emission)
Spectral Classes of Stars
Spectroscopic Parallax (formula)
Spectroscopy
Speed of Light (and its value in m/s)
Stefan-Boltzmann
Stellar Evolution
Stellar Spectroscopy
Supergiants
Temperature of Sun (core and surface)
Temperature Scales
Water Molecule
Wavelength and Frequency (inversely related)
White Dwarfs
White Light
Wien's Law