Astronomy 1102/1104 1 May, 2009
Study Guide for the Final Exam

The final exam will consist of 80 multiple-choice questions. The exam is cumulative, covering material from the previous exams, as well as new material from Unit V. Each unit will account for roughly 20% of the exam, with a bit less for Units II and V, and a bit more for the other units. Some of the questions may closely resemble questions on previous exams, practice exams, or even quiz questions in lecture, but the majority will be new.

The questions below cover material in Unit V. As before, they are similar to questions which would appear on a short-answer or essay exam, but they cover topics which are likely to appear on the final.

Sample questions

What is a habitable zone? Which stars have the largest and smallest habitable zones?

Why might the evolution of complex lifeforms on a planet orbiting a massive star be unlikely?

Give a brief timeline noting the formation of the following: The Universe, galaxies like the Milky Way, the Solar System, life on Earth, and complex life on Earth.

What is the Drake Equation? If its result is so uncertain, how is it still useful?

What is the Fermi Paradox?

What is a Doppler shift? How does it work?

Define the following: Brown dwarf. L dwarf. T dwarf. Y dwarf. Exoplanet. Hot Jupiter.

How can astrometry be used to detect exoplanets?

How can radial velocities give away the presence of planets orbiting other stars?

What other methods have astronomers used to detect exoplanets?

What methods to detect planets around other stars have been most successful?

What is a selection effect? What are some of the selection effects introduced by the different methods of detecting exoplanets?

Describe one of the typical multi-planetary systems discovered and compare it to the Solar System.

Why is Gliese 581 in the news?

What can we learn by studying an exoplanet which transits the star it orbits?

The history of searching for exoplanets is full of false detections. Describe one.

What is the brown dwarf desert?

What is the objective of the Kepler mission? What method will it use to achieve this objective?

How might one detect life on an exoplanet?