

Astronomy 305: Life in the Universe  
Homework 3: Chapter 3

Total points: 45

1. (18 pts) Briefly define and describe each of the various levels of structure illustrated in Figure 3.1.
2. (5 pts) [a] What is a light-year? [b] Is it a unit of distance or time? [c] Explain clearly.
3. (10 pts) What do we mean when we say that Earth and life are made from "star stuff"? Explain how this star stuff was made, and briefly describe the evidence supporting this idea.
4. (10 pts) What do we mean when we say the universe appears to be "fine-tuned" for life? Briefly describe the possible implications of this idea.
5. (2 pts) According to observations, the overall chemical composition of our solar system and other similar star systems is approximately
  - (a) 98% hydrogen and helium, 2% all other elements combined;
  - (b) 98% ice, 2% metal and rock;
  - (c) 100% hydrogen and helium.