

AST 309L Scalo TTh12:30

Reading assignments, lecture schedule (tentative), and end of chapter suggested problems for Part II of the course, leading to Exam 2, October 9

◆ Lectures Sept. 23/25

Extrasolar planets—detection and biosignatures (Ch. 11.2, 11.3). More detail in lectures if time; possible outside reading assignment; “homework assignment” –will be on exam.

About 1/4 to 1/3 of second exam will be on this topic

11.2 Extrasolar planets and biosignatures.

Outside reading: Wikipedia, “Extrasolar planets.” Link to page on “Methods of detecting extrasolar planets” up-to-date summary of notable exoplanet discoveries, with links. See Gliese 581c,d. Link to separate article on “superearths” at <http://en.wikipedia.org/wiki/Super-Earth>

Read “Cosmic Calculations 11.1”. Understand implications of Figure 11.17.

Section on “Life detection” will have to be supplemented...

11.3 Rare Earth? Could the Earth be nearly unique?

If you would like to read a little more on this, try then at Wiki at:

http://en.wikipedia.org/wiki/Rare_Earth_hypothesis Be careful you don’t get sucked into all the links!

Skip 11.4.

End of chapter questions (lots): RQ 3-14; QQ 28-35; Quantitative 49-53—Just think about how you might do these, what formulas you would use, but you won’t have to actually plug in numbers.

◆ Lectures Sept. 25/30

Before chapter 5, read **pp. 239-240 in Ch. 7** on water as a requirement for life.

Ch. 5. The nature of life on earth

Read 5.1 to 5.5 (pp. 140-181), skip 5.6.

Textbook sections: characteristics of life, cells, metabolism, genomes, extremophiles.

Emphasis in class: Molecular basis of life—prebiotic organic molecules; amino acids proteins; bases, nucleotides, nucleic acids; lipids and self-assembling membranes and bilayers. RQ 3-14, QQ 34. Try “Surprising discoveries?” 17-21, 23, 24, just to see whether you “get it.”

◆ Lectures Oct. 2/7

Ch. 6. Origin [and evolution] of life on Earth—We will only cover the “Origin” part of this chapter here, which means only subsections **6.1 (evidence)** and **6.2 (theoretical ideas)**, especially **6.2**.

(These are pages 191-206.) **Also sec. 6.6** (Artificial life, 226-228).

I will fill in more detail in class, especially concerning origin of life scenarios and problems.

Outside reading: Wiki entry on “Abiogenesis.” But also go to “origin of life” and choose Miller-Urey experiment, peptide nucleic acid, RNA world hypothesis, Spiegelman Monster.

RQ 1-7, QQ 33-37.

.....**Second exam here (Thurs. Oct. 9)**.....