

PHYS 122: Life in the Universe
Class Session 12, February 22, 2011

LEARNING OBJECTIVES

1. List the three unique properties of water that make it the most likely liquid from which life anywhere will be based from and why.
2. Compare and contrast the Martian atmosphere and weather properties with those of Earth's (how they are similar and how they are different). Describe what has led to those differences.
3. Describe the history of volcanism on Mars's surface and provide two pieces of evidence indicating past volcanism. Provide an approximate date of when volcanism began to decline and why.

Required Textbook readings for class 12: p. 236-242, 264-272 (7.1, start of 8.2)

1. In the simplest of expectations, life needs what three things to exist?
2. Life needs a liquid medium, but why is it most likely to be water?
3. Compare the properties of other simple, astronomically abundant molecules to those of water and explain why they are not so well suited for life.
4. What aspects of Mars's tilt (seasons) and rotation are similar to Earth? Why are the seasons on Mars affected by Mars's orbit but Earth's orbit does not affect its seasons (much)?
5. What kind of weather and 'storms' does Mars have? What drives this weather?
6. When looking at a map of Mars geological features, what are the most striking features? How is it different from Earth?
7. The largest volcanoes in the Solar System are on Mars. Why did they get so big?
8. When did volcanism begin to decrease? Why did it decrease?