

FINAL TOPICS—AY3, PROF. FORTNEY, FALL 2013

Please refer to your Midterm review sheet for topics covered prior to 10/31.

We highly recommend that you go through the review sheets as well as the Midterm key and come to review sessions with specific questions.

1. Interiors of terrestrial planets

- What causes geological activity?
- What are the processes by which interiors of terrestrial planets heat up? How do these processes work? When are these different processes important in the planet's lifetime?
- What are the processes by which the interiors of planets cool down?
- What is the most important factor for determining how fast a planet will cool?
- What shapes the surfaces of terrestrial planets?
- What basic properties of a planet determine its surface properties?

2. Atmospheres of terrestrial planets

- What determines a planet's surface temperature?
- How does the Greenhouse effect work? On what planets does this effect play a large role?
- What factors can cause long-term climate change?
- How does a planet gain atmospheric gases?
- How does a planet lose atmospheric gases?
- What are the atmospheres like on the different terrestrial planets?

3. Jovian Planets

- What are the properties of the Jovian planets? What are they made of? What do their interiors look like? (How are they different from terrestrial planets?)
- By what processes do Jovian planets generate heat?
- Which Jovian planets have rings? What causes the formation of rings?

4. Jovian Moons

- List the four Galilean moons. What are they composed of? What do their surfaces look like?
- What kinds of geological activity happen on Jovian moons? What drives this activity?
- What type of moon is most prone to geological activity? Why?
- What is orbital resonance and how does it affect Jovian moons?
- What are the properties of the largest moons of Saturn and Neptune?
- How do Jovian Planets get their moons?

5. Asteroids and Meteorites

- Where are asteroids found in our solar system, and where/when did

they form?

- What are asteroids composed of?
- Define meteorite. What are the fundamental types? How do they differ from one another, and why?

6. Comets

- Where are comets mostly found in our solar system? Where did they form?
- What are comets composed of?
- Under what circumstances do comets have tails? What are the two types of tails and what processes cause them?
- What's the deal with Pluto?

7. Exoplanets

- What are the methods for detecting exoplanets, and how does each of them work?
- What are the advantages and limitations associated with each detection method? Which method has yielded the most detections?
- What properties of a given exoplanet can the different methods reveal?
- What are the major differences between our solar system and the average planetary system we observe? How do these differences change our understanding of planet formation?

8. Life in the solar system and elsewhere

- What conditions on a planet are important for supporting life?
- In what types of extrasolar systems do we expect to find planets like this? Where in those systems?
- Assuming you found an exoplanet in its system's habitable zone, what would be the next step in determining how likely that planet is to sustain life?