

ASTRONOMY 153 – Moons and Planets – Syllabus

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Office hours: Hills 010, T&Th 1:15-2:30, 4:30-5:30

Keep checking UVM Blackboard for course updates.

Purpose: Our solar system is under more intensive study than ever before in history. Two major questions stand out as driving forces, and will serve as a framework for this course:

1- *How did our system originate, and what does this mean about its future?*

2- *Is there life anywhere but on earth, or has there ever been?*

Prerequisite: Astronomy 05 + Math 10 or permission

Course Structure: Class time will be split equally between faculty lecture material and student presentations, both with slides. Slides will be posted on Bb. Students may have the option to prepare a longer slide set and not present verbally in class.

Possible Topics Include: (Bigger list coming in class)

- Definitions of life and necessary environments
- Bode's Law – merely coincidence?
- Where did water in the solar system come from?
- Messenger's recent findings for Mercury
- What started the runaway greenhouse effect on Venus?
- Could any form of life exist on Venus today?
- How to terraform Venus or Mars
- How Mars lost most of its atmosphere
- When and for how long did water flow on Mars?
- The origin of the Martian moons
- Subsurface conditions on Mars and the rovers
- Why is there an inner asteroid belt?
- Cassini's findings for Jupiter
- Io's active volcanoes
- Can the oceans of Europa harbor life?
- Cassini and Huygens on Titan – could it host life?
- The strange water geysers on Enceladus
- What happened to cause Neptune's orbit to cross Pluto's?
- The strange orbit of Triton
- What will New Horizons tell us about Pluto?
- How we discover exoplanets
- Searching for an exoEarth

Recommended Text: Websites, to be announced

Grade Structure:

- 15% - presentation quality
- 10% - involvement in class discussions and criticisms
- 15% - each of 3 midterms
- 30% - cumulative final exam