GG666: Planetary Surface - "Geology of Planetary Landing Sites"

Instructor: Pete Mouginis-Mark

Instructor Contact: POST room 504A, pmm@higp.hawaii.edu, 956-6490

Times: Tuesday/Thursday 10:30 - 11:45 a.m.

Location: POST 544

Description: This course will explore the science discoveries from all of the places where we have landed spacecraft in the Solar System. This will include the Apollo and Surveyor sites on the Moon; the Venera landers on Venus; Viking, Pathfinder, Phoenix, MERs and Curiosity on Mars; the Huygens probe on Titan; and Philae on Comet 67P. As well as the geology of these sites (including impact cratering, volcanism, and periglacial processes), it will also include the rationale for site selection, remote sensing methods used for site validation, engineering constraints on lander design, and a comparison of lander results with pre-mission expectations.

Course Philosophy: Students (including those auditing) are expected to attend each class and participate in discussions. Allowances will be made for research travel or attending conferences. Those taking the course for grade or credit must complete mapping exercises, as well as complete the project.

Assessment: The course will include lectures, classroom discussions of important discoveries from the different missions, two take-home mapping exercises, and a project in which students investigates a specific set of results from either a lander or instrument, prepares a paper describing this investigation, and presents results in class. There is no text book associated with this course, which will instead make use of copious published journal articles.

Needed preparation: Familiarity with the geography of the Moon and planets.

Graduate SLOs addressed:
At M.S. level
1. Technical knowledge; 2. Scientific method (particularly image analysis and geologic mapping); and 3. Communicate geologic (and engineering) knowledge.

At Ph.D. Level
1. Technical knowledge; 2. Expertise in planetary geology and remote sensing; 3. Scientific method (particularly image analysis and geologic mapping), but also analyze and synthesize geologic constraints on planetary exploration; and 4. Communicate geologic (and engineering) knowledge via in-class presentation(s).