

EART 163: Planetary Surfaces

TuTh 12:00-1:45 E&MS D226

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Office hours: Tues & Thurs 1:45-2:45 or by appt.

Course Goals: To provide an introduction into how we use remote-sensing observations and modeling to obtain a quantitative understanding of the processes governing the formation and modification of planetary surfaces.

Text: H.J. Melosh, *Planetary Surface Processes*, Cambridge Univ. Press (2011), available in the bookstore.

Approximate Grading Scheme:

40% Weekly homeworks (due each Tuesday in class).

20% Midterm

40% Final

Late homework will be penalized at 10% per day.

Prerequisites:

EART160. I am also going to assume some familiarity with ordinary differential equations.

Plagiarism:

Collaboration on homework assignments is permitted and encouraged. But the work that you hand in must be your own i.e. if I ask you to reproduce your work on the board without your notes, you must be able to do so. If you are ever unsure about the appropriate level of collaboration, please ask.

If you use the textbook or other outside sources (such as web sites) then you must cite the source that you use.

Preliminary Course Outline:

Week 1 (March 29): Overview; planetary shapes.
Melosh chapters 1 and 2

Week 2 (April 5): Strength and rheology.
Melosh chapter 3

Week 3 (April 12): Tectonics.
Melosh chapter 4

Week 4 (April 19): Volcanism and cryovolcanism.
Melosh chapter 5

Week 5 (April 26): Impacts and regolith (1). **Midterm.**
Melosh chapters 6 and 7

Week 6 (May 3): Impacts and regolith (2).
Melosh chapters 6 and 7

Week 7 (May 10): Slopes and mass movement.
Melosh chapter 8

Week 8 (May 17): Wind
Melosh chapter 9

Week 9 (May 24): Water
Melosh chapter 10

Week 10 (June 31): Water and Ice
Melosh chapter 11

Final exam: Monday 6th June 8:00-11:00am in D226