ESS 200E (2013 Fall): Planetary Origins

Mondays and Wednesdays: 10:30am - 11:45pm in Geology 3645 (51100)

Lecturer: David Jewitt jewitt@ucla.edu

Notes on the Class

• We will cover the entire solar system in this class, from the rocky planets, to the gas and ice giants, the comets, the asteroids, the satellites and rings, the Centaurs, Kuiper belt objects and Oort cloud, and we will go beyond to consider the planetary systems of other stars. The concentration will be on what we know and on the relevant physical processes.

• We will derive everything on the board and use Keynote projection only where there is a need to show things that I cannot draw. The act of writing gives a better connection to the brain than looking at a projection. Be prepared to take a lot of notes.

• There is no ideal book for this course. The closest is "Planetary Sciences" by de Pater and Lissauer (CUP). The relevant literature lies in Icarus, Astrophysical Journal, Astronomical Journal and others....I will suggest reading material as we go along.

• I am open to suggestions regarding the format and content of this course.

• Class web page will be linked here:

http://www2.ess.ucla.edu/~jewitt/classes.html

(not ready yet!).

• Schedule below is a draft.

Date	N	Subject	Week
SEP			
Th Sep 26	1	Big-Picture Introduction to ESS 200E	1
OCT			
Tu Oct 01	2	No Class (DJ observing)**	2 KECK
Th Oct 03	3	Galactic context	
Tu Oct 08	4	Cloud collapse to a disk	3
Th Oct 10	5	Disk processes 1	DPS
Tu Oct 15	6	Disk processes 2	4
Th Oct 17	7	No Class (DJ traveling)**	Delaware
Tu Oct 22	8	Terrestrial planet structure, energetics & formation	5
Th Oct 24	9	Ice & Gas giant structure, energetics & formation	
Tu Oct 28	10	Constraints from satellite systems (regular & irregular)	6
Th Oct 31	11	Small bodies - asteroids	
NOV			
Tu Nov 05	12	Small bodies - comets	7
Th Nov 07	13	Kuiper belt structure & formation	
Tu Nov 12	14	Oort cloud structure & formation	8
Th Nov 14	15	Extrasolar planet systems 1	

Date	N	Subject	Week
Tu Nov 19	16	Extrasolar planet systems 2	9
Th Nov 21	17	Resonances, Migration, Scattering	
Tu Nov 26	18	Disk clearing, debris disks, WD pollution	10
Th Nov 28	19	No Class: Thanksgiving	
DEC			
Tu Dec 03	20	Student presentations 1	11
Th Dec 05	21	Student presentations 2	
**		Will schedule replacement classes	

The above syllabus is an outline. It will probably change as we go along and I will post updates to the class web site accordingly.