

CLaSP 565 Planetary Science W21 and W21 Syllabus. Instructor: Prof. Sushil Atreya

Lectures

1. Orientation, and Introduction to course via “A Tour of the Solar System” including a brief overview of the ocean worlds of Saturn for the Term Project (~1.5 lecture)
2. Planetary formation, origin and evolution of atmospheres (~1.5 lect)
2. Composition, Thermal structure, Mixing, Atmospheric stability (~4 lect)
3. Thermochemistry of Planetary Clouds and Aerosols (~2 lect)
4. Atmospheric Chemistry: formation and significance of trace constituents (~3 lectures)
5. Ionospheres (briefly, ~2 lectures)
6. Moons with atmospheres and oceans (~3 lectures)
7. Planetary Habitability (~2 lectures)
8. Future Missions, and Overview (1 lecture)
9. Tests, Homework and Test Reviews, Term Projects: 6 lecture hours

Term Project

Ocean Worlds, with particular emphasis on Enceladus and Titan, will be the topic for the term project. Outstanding scientific objectives, conceptual design of a spacecraft mission, potential payload with justification, radioactive power source, planetary protection, and mission implementation will be the main areas to be covered in the term project.

Total

27 lectures, including 1-2 hours of extra material

Grading

Tests and Homework each count for one-third of the term grade, and the Term Project counts for the remainder one-third.