**Clasp 565 Planetary Science Syllabus**

**Instructor:**

Cheng Li (CSRB, chengcli@umich.edu)

Office Hours: Wednesday 12:00 – 2:00 pm or by appointment

**Meeting times:**

Lecture: 9:30 – 11:30 am, MW

Lab session every two lectures

**Textbook (not required):**

Planetary Science, Imke de Pater and Jack Lissauer.

The lectures and discussions of the course are the “core” material that are essential to completing the problems, understanding the logic, and completing your project. You will not be able to keep up by relying on the text alone. So the textbook listed is not required for this course but for your general reading.

**Workload:**

6 Homework assignments, 1 team project

3 topics: Planetary Interior, Planetary Atmosphere, Planetary Formation

Grade: Homework 50% + Project 40% + Participation 10% = 100%

**Learning objectives:**

The learning objective of this course to establish a baseline of understanding planets. Here are typical questions we will discuss in this course:

* What is a planet?
* What determines the size of the planet?
* What’s inside a planet and how do we know it?
* What’s the basic structure of planetary atmospheres?
* What’s the past and the future of planetary atmospheres?
* How do planets form and how do we know it?

**Course policies:**

Attendance. Attending lectures physically is required for this course. 10% of grade is assigned to participation. Absence from lectures or lab sessions is only permitted for illness, a death in the family or other serious emergency.

 Laptops. You can use either laptops or pens and papers for lectures. You must bring a laptop to the classroom for the lab session.

 Collaboration. Every student needs to turn in their individual project report. For problem sets, collaboration among students is encouraged, but all written materials turned in must be your own writing.

 Late work. There are 6 homework assignments in total and you will have one week to do each homework. Homework assignments handed in after the one week are subject to penalty. The half-life decay constant is one week. For example, homework turned after two weeks will receive half credit.

Lab session. This course contains significant hands-on lab sessions that will help you understand the course material. Participating in the Lab sessions is required for this course. You should bring a laptop with you to attend the lab session.

**Syllabus**

8/28, What is a planet? (I)

8/30, What is a planet? (II)

9/4, Labor day (no class)

9/6, Lab session / project (please bring laptop)

Homework #1 due on 9/15

9/11, Structure of planetary interior (I)

9/13, Structure of planetary interior (II)

9/18, Lab session

Homework #2 due on 9/25

9/20, Proving planetary interior using gravity (I)

9/25, Proving planetary interior using gravity (II)

9/27, Lab session / project catch-up #1

10/2, What are planetary atmospheres made of? (I)

10/4, What are planetary atmospheres made of? (II)

10/9, Lab session

Homework #3 due on 10/16

10/11, Structure of planetary atmospheres (I)

10/16, Fall break (no class)

10/18, Structure of planetary atmospheres (II)

10/23, Lab session / project catch-up #2

Homework #4 due on 10/30

10/25, Solar system planets: Jupiter (I)

10/30, Solar system planets: Jupiter (II)

11/1, Lab session

11/6, Solar system planets: Mars (I)

11/8, Solar system planets: Mars (II)

11/9, Lab session

11/13, Solar system planets: Venus (I)

Homework #5 due on 11/20

11/15, Solar system planets: Venus (II)

11/20, Lab session / project catch-up #3

11/22, Thanksgiving (no class)

11/27, Solar system planets: Titan (I)

Homework #6 due on 12/4

11/29, Solar system planets: Titan (II)

12/4, Exoplanet atmospheres

12/6, Project oral presentation (Final class)

Final Report due on 12/16