In space missions it is important to have a knowledge of environments found when exploring other planets, specially those with an atmosphere. For this reason in this course we will focus on the diverse solar system atmospheres found in other worlds, including a wide variety of diverse phenomena.

Some of the main goals are:

- Have a basic knowledge of some of the essential mechanisms of Earth’s atmosphere considering it as a global system and its application to other planets.
- Have a basic knowledge of the atmospheres of terrestrial planets.
- Have a basic knowledge of the atmospheres of the giant planets and some unique meteorologic phenomena related to them.
- Analyze basic planetary data to experimentally illustrate phenomena found in planetary atmospheres.
205071 - Introduction to Planetary Atmospheres

Study load

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Content

INTRODUCTION TO THE SOLAR SYSTEM

Learning time: 6h

- Theory classes: 2h
- Self study: 4h

Description:
General view of the structure of our Solar System and the main properties of planets and satellites.

TERRESTRIAL PLANETS

Learning time: 40h

- Theory classes: 15h
- Self study: 25h

Description:
We begin with the Earth’s atmosphere structure, its radiative equilibrium and greenhouse effect, global circulation and important related phenomena, clouds, etc. Most of these aspects are also reviewed for the rest of the terrestrial planets, following with the atmospheres of Venus and Mars. The atmosphere of Titan is also considered.

THE GIANT PLANETS

Learning time: 29h

- Theory classes: 10h
- Self study: 19h

Description:
Review of the atmospheres of the giant gas planets, Jupiter and Saturn, and the icy giants Uranus and Neptune. We will see some relevant phenomena such as the general circulation, giant convective storms, waves, vortices, clouds, etc.
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Qualification system

Attendance to classes and participation in practical exercises will be a 40% of the total grade. 60% of the rest of the grade will depend on a class presentation and a document on a topic related to the subject of the course.

Any student who does not have a satisfactory grade, will have the opportunity to take an additional global exam that will take place the date fixed in the calendar of final exams. The grade obtained in this test will range between 0 and 10, and will replace that of the previous tests only in case it is higher.

Bibliography

Basic:


Complementary: