





# Astronomy and Astrophysics (ASTR) 310

## Planetary Science (Revision 1)

**Status:**

Replaced with new revision, see the [course listing](#)  for the current revision 

**Delivery mode:**

Individualized study online 

**Credits:**

3

**Area of study:**

Science

**Prerequisites:**

One of the following: **ASTR 210** (or the former ASTR 200) and a strong mathematical background (including calculus);  
or **ASTR 205** and **MATH 265**;  
or **PHYS 200** and **MATH 265**; or consent of the course coordinator

**Precluded:**

None

**Challenge:**

ASTR 310 has a challenge for credit option.

**Faculty:**

[Faculty of Science and Technology](#) 

## Overview

Welcome to *Astronomy 310: Planetary Science*, a three-credit course about the physics of the Solar System. This course is based upon the text *Moons & Planets* by William K. Hartmann (5th edition). It is an intermediate-level astronomy course, meant to be taken after ASTR 210, and is for students who want to study planetary astronomy in a deeper way. Unlike ASTR 210, which covers a wide range of topics in astronomy, ASTR 310 is more focused, concentrating on the planets and smaller bodies found in our own "solar neighbourhood," the Solar System. Students who have not completed ASTR 210, but who have a strong mathematical background (including calculus), may also take the course.

## Outline

ASTR 310 comprises five units as described below:

### **Unit 1: Introduction and Overview**

This unit outlines the basic physics and equations needed for your studies of the Solar System.

### **Unit 2: Stellar and Planetary Formation**

This unit looks at the formation of the principal bodies in the Solar System, such as the Sun, the planets and the moons.

### **Unit 3: Small Bodies**

This unit provides an overview of the smallest objects found in the Solar System, such as meteoroids, asteroids and comets.



### **Unit 4: Planetary Interiors and Surfaces**

This unit covers the interiors of planets and planetary surface phenomena such as cratering, volcanism and tectonics.

### **Unit 5: Planetary Atmospheres**


This unit examines the atmospheres of planets, including how they originated and whether planets can keep an atmosphere.

## Evaluation

To **receive credit**  for ASTR 310, students must achieve an overall passing grade of **D (50 percent)**  in the course. In addition, students must obtain a

passing grade of 50% on both the midterm and final exams. The weighting of the composite grade is as follows:

<b>Activity</b>	<b>Weight</b>
Assignment 1	6%
Assignment 2	6%
Assignment 3	6%
Assignment 4	6%
Assignment 5	6%
Midterm Exam	35%
Final Exam	35%
<b>Total</b>	<b>100%</b>

To learn more about assignments and examinations, please refer to Athabasca University's [online Calendar](#) .

## Materials

Hartmann, William K. (2005). *Moons & Planets* (5<sup>th</sup> ed.). Belmont, CA: Brooks/

Cole.  (Print)

## Challenge for credit

### Overview

The challenge for credit process allows you to demonstrate that you have acquired a command of the general subject matter, knowledge, intellectual and/or other skills that would normally be found in a university-level course.

Full information about [challenge for credit](#) can be found in the Undergraduate Calendar.

## Evaluation

To register for a challenge exam, the course professor must be presented with a compelling reason to expect you to succeed at that exam. The exam tests knowledge comparable to that described in the syllabus above, including the ability to make calculations at a level expected in a senior level Science course.

To [receive credit](#) for the ASTR 310 challenge registration, you must achieve a grade of at least **C- (60 percent)** on the examination.

 [Challenge for credit course registration form](#)

## Important links

- > [Academic advising](#)
- > [Program planning](#)
- > [Request assistance](#)
- > [Support services](#)

Athabasca University reserves the right to amend course outlines occasionally and without notice. Courses offered by other delivery methods may vary from their individualized study counterparts.

*Opened in Revision 1, March 12, 2013*

*Updated June 18, 2024*

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