

Graduate Syllabus

12/11/2021 approved by Graduate Council

Spring 2021

PTY517

Atmospheres & Remote Sensing

Instructor Information

Prof. Caitlin Griffith, *Space Sciences Building, Room 301*

Monday and Wednesday 11:00-12:15 Office Hours: Wednesday 12:15PM,
or by appointment

Course Description

This course provides an overview of the physics and chemistry of planetary atmospheres including the thermodynamics, energetics, radiative processes, dynamic meteorology, and chemistry and diffusion. Students are assumed to have basic knowledge in undergraduate physics and vector calculus. The course introduces the main characteristics of the atmospheres in our solar system, and explores the physical processes manifest in the diverse atmospheres in the Solar System and Exoplanets. Atmospheric processes are discussed in the context of current scientific questions regarding the structures and evolutions of planetary and exoplanetary atmospheres.
description of your course.

Course Prerequisites or Co-requisites

If relevant, list all course prerequisites and any courses that must be taken simultaneously with this course.

Course Format and Teaching Methods

This class is scheduled to be taught in the LIVE ONLINE modality.

Class Recordings:

- o Note to instructors: If course recordings are being made, notify students, and suggest ways to address if they do not wish to be identified by name.

Course Objectives

This course provides an overview of the physics and chemistry of planetary atmospheres including the thermodynamics, energetics, radiative processes, dynamic meteorology, and chemistry and diffusion. Students are assumed to have basic knowledge in undergraduate physics and vector calculus. The course introduces the main characteristics of the atmospheres in our solar system, and explores the physical processes manifest in the diverse atmospheres in the Solar System and Exoplanets. Atmospheric processes are discussed in the context of current scientific questions regarding the structures and evolutions of planetary and exoplanetary atmospheres.
description of your course.

Expected Learning Outcomes

Upon completion of this course students will understand the greenhouse effect, the characteristics of the planets and of their, temperature profiles and aspect of the dynamics of atmospheres and some information on the chemistry of the atmospheres.

Required Texts and Materials

There will be no text books, only material on line.

Equipment and software requirements: This class needs daily access to the following hardware: [laptop or web-enabled device with webcam and microphone]; regular access to reliable internet signal; ability to download and run the following software: [web browser, Adobe Acrobat].

Schedule of Topics and Activities

None

Assessments

What assessments are used to calculate the students' grades in this course? For example: "Four quizzes, each weighted equally, and a course project weighted the same as one exam."

There will be roughly 5-8 homework assignments, weighted equally which taken together comprise 30% of the grade.

There will be roughly 2-3 homework assignments, weighted equally which taken together comprise 30% of the grade.

Project

One paper and an accompanying 30 min presentation are required for the student to complete the course. There are two parts. The students give a 30 minute talk of roughly 30 slides, on a study of planetary atmospheres. The student will write up a set of class notes that will be distributed to the class. The length of the notes will be 5-6 pages, including the figures and references. This project will allow the student to understand and appreciate the current open questions in the field of planetary atmospheres. Detailed guidelines of the project are given in a separate write-up

It is often useful to present this information a table. For example:

Assessment Categories	Percentage of final grade
Homework	30%
Project	40%
Quizzes (3-4 total)	30%
Final exam	0%
Total	100%

Final Examination or Project

Specify the expectations and requirements for final exams or projects, including the date and format.

Grading Scale and Policies

Specify how grades are assigned for your course (see, <https://catalog.arizona.edu/policy/grades-and-grading-system>) and what points or percentages a student will need to earn each letter grades or pass your class.

Grade Scale

- A: 100%—90%
- B: 89%—80%
- C: 79%--70%
- D: 69%--60%
- Below 60% is a failing grade

Nondiscrimination and Anti-harassment Policy

The University of Arizona is committed to creating and maintaining an environment free of discrimination. In support of this commitment, the University prohibits discrimination, including harassment and retaliation, based on a protected classification, including race, color, religion, sex, national origin, age, disability, veteran status, sexual orientation, gender identity, or genetic information. For more information, including how to report a concern, please see: <http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy>

University Policies

All university policies related to a syllabus are available at: <https://academicaffairs.arizona.edu/syllabus-policies>. By placing this link in your syllabus, you no longer need to have each individual policy included in your syllabus.

Subject to Change Notice

Information contained in the course syllabus, other than the grade and absence policies, may be subject to change with reasonable advance notice, as deemed appropriate by the instructor of this course.

Graduate Student Resources

Please consider including a link to the University of Arizona's Basic Needs Resources page: <http://basicneeds.arizona.edu/index.html>