

Graduate Syllabus for PTYS 517

Spring 2023

Course Number and Title

PTY517 Section 001 – Atmospheres and Remote Sensing
Kuiper Space Sciences Bldg, room 312
Monday & Wednesday 9:30 AM

Instructor Information

Professor Roger Yelle
Kuiper Space Sciences Bldg, room 525
rogeryelle@gmail.com
(520) 288-3669
Office Hours: Monday and Wednesday, 2:00-4:00 PM or by appointment

Course Description

Detailed description of your course. Recommendation is 100-300 words.

Course Prerequisites

Students should have a basic understanding of physics and chemistry at the intermediate undergraduate level. Students should have a mastery of calculus including vector calculus and some familiarity with differential equations.

Course Format and Teaching Methods

The course is Live in person consisting of lectures and in-class discussion.

Course Objectives

PTY517 provides an overview of the physics and chemistry of planetary atmospheres including the thermodynamics, energetics, radiative processes, dynamic meteorology, and photochemistry and diffusion. The course describes how these physical processes are manifest in the diverse solar system atmospheres. The basic characteristics of the atmospheres in our solar system are also described. The instructional level is aimed at beginning graduate students with an adequate background comparable to that obtained from advance undergraduate courses in physics and chemistry. Knowledge of vector calculus and elementary differential equations is assumed. Successful students will be able to understand current research in planetary atmospheres and will be well prepared for more detailed studies of planetary atmospheres.

Expected Learning Outcomes

The successful student will be able to understand research talks on planetary atmospheres at professional conferences and read the profession literature on planetary atmospheres. Students will understand how current problems in the study of planetary atmospheres relates to problems in other fields (geology, space physics, etc.). Students will be prepared to begin research projects in planetary atmospheres.

Required Texts and Materials

The main class material is lecture notes distributed by the instructor prior to class. Some reference books have also been put on reserve in the LPL Library including

- The Physics of Atmospheres by Houghton
- An Introduction to Atmospheric Physics by Andrews
- An Introduction to Dynamic Meteorology by Holton
- Principles of Planetary Climate by Pierrehumbert

Schedule of Topics

See the attached schedule.

Assessments & Grades

The class grade is based on problem sets and exams with the relative contributions listed below. Problems set and exams will be graded on a numerical scale of 100 with A:85-100, B:70-85, C:55-70, D:40-55, E: <40

Assessment Categories	Percentage of final grade
Problem sets	50%
Mid-term exam	25%
Final exam	25%
Total	100%

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

The University of Arizona's Basic Needs Resources page can be found here: <http://basicneeds.arizona.edu/index.html>