

ASTR/ATOC 3720: Planets and Their Atmospheres

Spring 2017

Tues/Thurs 2:00-3:15 pm, Duane G130

<http://learn.colorado.edu>

Prof: Dave Brain; 5-5606; david.brain	Hours: <u>Tues 9-10:30</u> in D142, or by appt.
TA: Sam Walker; 2-5010; samantha.walker-1	Hours: <u>Wed 3-5</u> in E122, or by appt.
LAs: Zarah Brown; zarah.brown Calvin Hill; calvin.hill	Hours: <u>Wed 10:30-12:30</u> in D250, or appt. Hours: <u>Tues 3:30-4:45</u> and <u>Fri 1-2</u> in D250

Content

This course is an introduction to the physics of planetary atmospheres. Topics will include gases, light, energetics of atmospheres, atmospheric structure, atmospheric dynamics, atmospheric chemistry, moisture and clouds, climate, and special relevant topics such as aurora and exoplanetary atmospheres. Two related fall semester courses in this department cover planetary solid bodies and planetary formation and dynamics.

Goals

- Encourage clear organization and presentation of ideas when solving problems
- Demonstrate that scientists learn by “starting simple” and slowly increasing complexity
- Give a sense of the current boundaries of our understanding of planetary atmospheres
- Practice translating professional level science writing for the layperson

Prerequisites

- PHYS 1110 and 1120, or instructor consent
- Either MATH 1300 and 2300, or APPM 1350 and 1360, or instructor consent.

Course Materials

Main Texts:

- *Principles of Atmospheric Science* by J.E. Frederick
- *Fundamental Planetary Science: Physics, Chemistry, and Habitability* by Lissauer and de Pater. One long chapter from this book, really, plus a few other sections.

Optional References:

- *Atmospheres* by Goody & Walker, posted in PDF format on D2L – oldy but a Goody
- *An Introduction to Planetary Atmospheres* by Sanchez La Vega – lots of planet stuff
- An introductory planetary science book, such as *The Cosmic Perspective*

Course Evaluation

30%	Final exam	(Sunday, May 07, 4:30-7:00 pm)
15%	Mid-term Exam #1	(February 28)
15%	Mid-term Exam #2	(April 11)
25%	Homework	(8-10, due Thursdays, drop lowest score)
10%	Project	(due April 21 via D2L Dropbox)
5%	HW/Clickers/Lowest MT	(I'll choose whichever benefits you most)

The course project will be described in class and posted on D2L.

What follows is “Grumpy Professor” and University legalese. It is important to read and be familiar with these statements, and I will abide by them. But it is also worth noting that it can all be boiled down to the following statement: **I will treat you with respect and as a unique human being, and hope that you do the same to each other and to me.**

Honor Code: All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the [academic integrity policy](#) of the institution. Violations of the policy may include: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access, clicker fraud, resubmission, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code Council (honor@colorado.edu; 303-735-2273). Students who are found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code Council as well as academic sanctions from the faculty member. Additional information regarding the academic integrity policy can be found at honorcode.colorado.edu.

Learning Environment: Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, color, culture, religion, creed, politics, veteran’s status, sexual orientation, gender, gender identity and gender expression, age, disability, and nationalities. Class rosters are provided to the instructor with the student’s legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. For more information, see the policies on [classroom behavior](#) and [the student code](#).

Discrimination and Harassment: The University of Colorado Boulder (CU Boulder) is committed to maintaining a positive learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct, discrimination, harassment or related retaliation against or by any employee or student. CU’s Sexual Misconduct Policy prohibits sexual assault, sexual exploitation, sexual harassment, intimate partner abuse (dating or domestic violence), stalking or related retaliation. CU Boulder’s Discrimination and Harassment Policy prohibits discrimination, harassment or related retaliation based on race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. Individuals who believe they have been subject to misconduct under either policy should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127. Information about the OIEC, the above referenced policies, and the campus resources available to assist individuals regarding sexual misconduct, discrimination, harassment or related retaliation can be found at the [OIEC website](#).

Disability Accommodations: If you qualify for accommodations because of a disability, please submit to me a letter from Disability Services in a timely manner (for exam accommodations provide your letter at least one week prior to the exam) so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities. Contact Disability Services at 303-492-8671 or by e-mail at dsinfo@colorado.edu. If you have a temporary medical condition or injury, see [Temporary Injuries](#) guidelines under the Quick Links at the [Disability Services website](#) and discuss your needs with me.

Religious Observances: Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. **In this class, you must contact me within the first two weeks of the semester to make alternate arrangements.** See the [campus policy regarding religious observances](#) for full details.

Have a great semester!

