

## FORMATION & DYNAMICS OF PLANETARY SYSTEMS

ASTR 3710: Duane G131, Tuesday / Thursday 11:00-12:15

**Instructor:** Phil Armitage

**Office hours:** Tuesday and Thursday, 2:00-3:00pm, or by appointment, or at any time if I'm in the office and free. My office is JILA A909 (on the 9<sup>th</sup> floor of the JILA tower). Phone: 303-492-7836, email: [pja@jilaul.colorado.edu](mailto:pja@jilaul.colorado.edu)

**Web:** I will be posting lecture notes at <http://solarsystemorigins.wordpress.com> in a blog format. My goal (probably not always realized!) is to post each lecture at least a day in advance of class, and I encourage you to read or at least skim the notes *before* coming to class. Questions or comments can be posted at any time on the website – if you have a query it's likely others do too so please do participate.

**Scope:** We will be covering the origin of planetary systems and their dynamical evolution. The discovery of extrasolar planetary systems, along with vastly improved knowledge of the outer regions of our own Solar System, have revolutionized the field of planet formation. We will discuss these new observations, and their implications, throughout the semester. Understanding planetary origins requires a grasp of a broad array of physical and chemical processes, gravitational dynamics, and observations, and the homeworks and exams will try to develop the skill of being able to make reasonable estimates of sometimes uncertain phenomena.

**Homework:** There will be two types of homework given regularly through the semester. *Problem sets* are designed to deepen your comprehension of lecture material (nothing beats hands-on experience of trying to solve a problem yourself, rather than just seeing the correct solution in class), and to practice solving problems similar to those you will encounter in the exams. Problem sets will be corrected and graded. *Science writing assignments* are intended to develop your ability to read, critique and write scientific articles at different technical levels. For feedback purposes, some of these assignments will be peer graded (i.e. you will offer comments on other students' work, anonymously in both directions). However, for class grading purposes the science writing assignments are "tickable exercises" – full credit will be available provided that you make a good faith effort to complete and hand in the work.

**Exams:** There will be two in-class midterms (October 8<sup>th</sup>, November 12<sup>th</sup>) and a comprehensive final (December 17<sup>th</sup>, 4:30-7:00pm).

**Grading:** Midterms (20% each), final (30%), problem sets (20%), science writing assignments (10%).

**Prerequisites:** PHYS 1110 and 1120, and calculus (MATH 1300 and 2300, or APPM 1350 and 1360). If you do not meet these prerequisites, you may do poorly in the class. Note that 3710 is an elective for the APS Major and Minor, but is *not* part of the planetary sequence.

**Textbook:** "Fundamental Planetary Science: Physics, Chemistry and Habitability" by Jack J. Lissauer and Imke de Pater. This is a new book, which was meant to be available in the early summer but is now being published in September. It is optional (I won't be assigning readings or problems from the book), but would likely be helpful for other planetary classes. Note that it is *not* the same as "Planetary Sciences" by the same authors, which is an excellent but nominally graduate level text.

**Accommodation for disabilities:** If you qualify for accommodations because of a disability, please submit 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](mailto:dsinfo@colorado.edu).

If you have a temporary medical condition or injury, see Temporary Injuries under Quick Links at Disability Services website (<http://disabilityservices.colorado.edu/>) and discuss your needs with your professor.

**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. Please see me if you have potential conflicts.

**Classroom behavior:** 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. See policies at

<http://www.colorado.edu/policies/classbehavior.html> and at  
[http://www.colorado.edu/studentaffairs/judicialaffairs/code.html#student\\_code](http://www.colorado.edu/studentaffairs/judicialaffairs/code.html#student_code)

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<http://www.colorado.edu/policies/honor.html> and at <http://honorcode.colorado.edu>