AST4930: Star and Planet Formation, Spring 2014

Assoc. Prof. Jonathan C. Tan (jt @ astro.ufl.edu)

Tue. periods 5 & 6 (11.45am - 12.35pm; 12.50pm - 1.40pm)
Thur. period 6 (12.50pm - 1.40pm)

My office is 302 Bryant and my office hours are Thur. 1.40pm-2.40pm, or by appointment.

The website for the class is www.astro.ufl.edu/~jt/teaching/spf/

Primary textbook:

We will also make use of
Lecture notes on the formation and early evolution of planetary systems
by Phil Armitage

PDF slides of the class notes will be available on the course web site.

Your final grade will be determined by your homework (30%), midterm exam (20%), final exam (30%) and oral presentation & term paper (20%).

The midterm exam will be in class on Thur. 27th Feb. at 12.50pm - 1.40pm.

The final exam will be in class on Tue. 22nd April at 11.45am - 12.35pm.
Course Learning Objectives:

• To provide students with a detailed overview of star and planet formation studies. This will be accomplished through lectures and weekly reading assignments.

• To teach students the scientific process and how we can understand the Universe using basic physical laws. This will be accomplished through lectures and in-class discussions as well as homework assignments. Students will gain an understanding of how the scientific method is applied to the field of star and planet formation.

• To teach scientific reasoning or the use of logic, observations, and critical thinking to interpret observations of the Universe. This will be accomplished through in-class discussions, homework assignments and presentation (including oral) of a term paper topic.

Cheating:

From the Academic Honesty Guidelines and Student Conduct Code in the University of Florida Undergraduate Catalog: “Academic Honesty: The university requires all members of its community to be honest in all endeavors. A fundamental principle is that the whole process of learning and pursuit of knowledge are diminished by cheating, plagiarism, and other acts of academic dishonesty. In addition, every dishonest act in the academic environment affects other students adversely, from the skewing of the grading curve to giving unfair advantage for honors or for professional or graduate school admission. Therefore, the university will take severe action against dishonest students. Similarly, measures will be taken against faculty, staff, and administrators who practice dishonest or demeaning behavior.” Any student caught cheating will be referred to the Honor Code Chancellor.

Class Attendance and Make-up Work:

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

Special Accommodations:

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter to be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Evaluations:

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results/.
Course Outline (approximate):

1. Introduction & Overview (S&P Ch. 1)
2. The Interstellar Medium (S&P Ch. 2)
3. Molecular Clouds (S&P Ch. 3)
4. Young Stellar Systems (S&P Ch. 4.1-4.3, 4.5)
5. Molecular Transitions (S&P Ch. 5.1-5.3; 6.1)
6. Heating, Cooling and Cloud Thermal Structure (S&P Ch. 7, 8.1-8.2)
7. Cloud Equilibrium and Gravitational Collapse (S&P Ch. 9.1 ... 10.2, 10.4)
8. Protostars and accretion disks (S&P Ch. 11.1-11.3)
9. Multiple Star Formation (Binaries & Clusters) (S&P Ch. [12])
10. Feedback from forming and young stars (S&P Ch. [13], [15])
11. Galactic and Extra-galactic Star Formation (S&P Ch. [19])
12. Protoplanetary disks, including disk evolution (Armitage Sect. II)
13. Models of Planet Formation (Armitage Sect. III)
14. Extrasolar Planets (Class Notes)