Astr 350 – Introduction to Astrophysics - Stars
Fall 2016 Course Information & Syllabus

Course Description: This course provides an introduction to celestial mechanics, radiative transfer, stellar structure, and stellar remnants (including black holes and neutron stars). Aspects of star formation and solar system formation will also be explored. Together, ASTR 350 and ASTR 360 provide a comprehensive survey of modern astrophysics needed for senior research and graduate study in astronomy. Either ASTR 350 or 360 may be taken first. As it is, there is a large amount of material to cover in this course. As a result, some topics will be covered at a relatively shallow level.

Course Objectives and Learning Outcomes: This is primarily a content driven course – the student is expected to learn the content covered in the lectures listed on following page. By then end of the course, the student should understand how the spectrum of a star forms and how observations of the spectrum can be used to infer physical properties of the star. The student will also understand the general internal physical structure of a star from the time it first forms until the end of its life. The student should understand the physical principles that govern this structure and what causes the to change throughout the life of a star.

Meeting time and place:

Astr 350
Tues, Thurs 10:50 am – 12:05 pm
Herman Brown 254

Instructor:

Prof. Christopher M. Johns-Krull
Department of Physics and Astronomy
Office: 352 Herman Brown
Phone: (713) 348-3531 E-mail: cmj@rice.edu

Office Hours:

Wednesdays: 11:00 am - Noon Thursdays: 1:00 pm – 2:00 pm
Or by appointment

Required Texts:

Title: "An Introduction to Modern Astrophysics" (Second Edition), hardback
Authors: Bradley W. Carroll & Dale A. Ostlie
Publisher: Pearson/Addison Wesley

Grading:

Homework (approx. 8 assignments)	45%
Midterms (2)	30%
Final Exam	25% (take home, inclusive, due at end of finals period)

Late Policy:
Homework assignments must be turned into the professor by the end of class on the due date, which will be given on each homework set. Late homework can be turned in for partial credit. If the assignment is turned in by the end of the next class, the penalty is 25%; by the end of the next class, 50%; and so on.

Students With Disabilties:
If you have a documented disability that will impact your work in this class, please contact the professor to discuss your needs. Additionally, you will need to register with the Disability Support Services Office in the Ley Student Center.

Honor Code:
The midterms and final exam are pledged. No help may be given or received on these assignments. Homework assignments are meant to help you understand the material, so you are free to discuss the general nature of the concepts with anyone. However, the actual description of the answer and any specific calculations should be done individually. If you are in doubt about how much to ask/divulge about a specific problem, you might work through a problem that is conceptually similar to the one assigned. Copying down someone else's answer (or allowing someone to copy yours) is an honor code violation.

Astronomy 350 Daily Plan
Fall 2015

	Topics to be Covered	Chapter(s)
T Aug 23	Organization and The Celestial Sphere	1
Th Aug 25	Celestial Mechanics I	2
T Aug 30	Celestial Mechanics II	2
Th Sep 1	The Continuous Spectrum of Light	3
T Sep 6	The Interaction of Light & Matter	5
Th Sep 8	Telescopes & Fundamental Stellar Parameters	6, 7
T Sep 13	Stellar Parameters, Brown Dwarfs, & Extrasolar Planets	7 + HO
Th Sep 15	Stellar Atmospheres I	8, 9
T Sep 20	Stellar Atmospheres II	9
Th Sep 22	Stellar Atmospheres III	9
T Sep 27	Stellar Atmospheres IV	9
Th Sep 29	Stellar Atmospheres V	9
T Oct 4	Stellar Interiors I	10
Th Oct 6	Midterm I	10
T Oct 11	Midterm Recess	
Th Oct 13	Stellar Interiors II	10
T Oct 18	Stellar Interiors III	10
Th Oct 20	The Sun	11
T Oct 25	ISM and Star Formation	12
Th Oct 27	Pre-Main Sequence Evolution and Planet Formation	12, 23
T Nov 1	The Main Sequence Sequence	13
T Nov 3	Low Mass Post-Main Sequence Evolution	15
T Nov 8	High Mass Post-Main Sequence Evolution I	15
Th Nov 10	High Mass Post-Main Sequence Evolution II	15
T Nov 15	Midterm II	
Th Nov 17	Special Relativity & Degeneracy	4, 16
T Nov 22	White Dwarfs & Neutron Stars	16
Th Nov 24	Thanksgiving	
T Nov 29	General Relativity & Black Holes	17
Th Dec 1	More Black Holes & Close Binaries	17, 18