

ASTR 300

Stars and Stellar Systems

Fall 2009

(TuTh 9:30 - 10:45 CSS 2428)

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Office: CSS 1227

Office Hours: M 3:30-4:30, Th 11:30-12:30

TEXT:

There is one (required) text for this course:

“**Stars and Galaxies**” by Michael Seeds,
(6th edition) (Brooks Cole, 2007) (ISBN 978-0495388197)

GRADING: Grades will be based on the exams (two mid-terms and the final) and on homework. Weighting will be: Final, 30%; mid-terms, 20% each; homework, 30%.

HOMEWORK:

There will be seven homework sets for this course. The homework will be based on material from both lectures and reading assignments. Only the six highest homework grades will be counted. If you fail to turn in one set, you will receive a zero for it and it will count as your lowest homework grade. Homework sets are due at the beginning of lecture on the dates indicated on each homework. Since solutions to the homework will be handed out immediately after they are due, **late homework will not be accepted.** (Homeworks must be handed in – email is not acceptable.)

ACADEMIC INTEGRITY:

University regulations regarding academic integrity apply to all work performed for credit in this course. Particulars of the University’s Code of Academic Integrity are printed in the Undergraduate Catalog, and a description of what constitutes academic dishonesty is also given in the on-line Schedule of Classes. In brief, the Code requires that you must never engage in acts of academic dishonesty at any time. Acts of academic dishonesty include cheating, fabrication, plagiarism, or helping another person to do any of these things.

The rules regarding academic integrity apply to homework as well as to exams. As a part of these rules, you must give credit to any book (including the course textbook!), published article, or web page that you have used to help you with a particular assignment. These rules also apply to unpublished sources of information. In particular, *students are encouraged to discuss assignments and other class material with each other, but every student must personally think through and write up his or her own answers to the homework questions.*

According to University policy, all students are expected to write by hand and sign on examinations, papers, or other academic assignments not specifically exempted by the instructor the following Honor Pledge:

I pledge on my honor that I have not given or received any unauthorized assistance on this assignment/examination.

| Date | Topic | Reading | HmWk Due | |
|---|--|--|---------------|------|
| ... Some Basics of Radiation and Gravity | | | | |
| Sep | 1 | Introduction. Scale of the Cosmos in Space & Time. | 1-2, 1-3 | |
| | 3 | Looking at the Sky; Gravity. | 2-1, 2-3, 5 | |
| | 8 | Gravity & Orbits. | 5 | |
| | 10 | Light and Telescopes. | 6 | |
| | 15 | Radiation. Stellar Luminosity & Radius. | 7-2, 9-1, 9-3 | HW 1 |
| | 17 | Atoms & Spectra. | 7-1, 7-3 | |
| | 22 | The Doppler Effect & Stellar Motions. | 7-3 | |
| ... Our Sun & the Structure of Stars | | | | |
| Oct | 24 | The Sun; Helioseismology. | 8-1 | HW 2 |
| | 29 | Nuclear Reactions in Stars; Neutrinos. | 8-2 | |
| | 1 | Solar Activity; Solar & Stellar Winds. | 8-3 | |
| | 6 | *** 1st Mid-Term Exam *** | | |
| | 8 | The Distances and Masses of Stars. | 9 | |
| | 13 | The H-R Diagram & Stellar Clusters. | 9 | |
| | ... The Birth, Evolution & Death of Stars | | | |
| Nov | 15 | The Interstellar Medium. | 10 | HW 3 |
| | 20 | Stellar Birth. | 11 | |
| | 22 | Computer Modeling of Stellar Evolution. | 12 | |
| | 27 | Advanced Evolution and White Dwarfs. | 13 | HW 4 |
| | 29 | The Evolution of Close Binary Stars. | 13-2 | |
| | 3 | The Death of Lower-Mass Stars; Planetary Nebulae? | 13-1 | |
| | 5 | The Death of Massive Stars. | 13-3 | HW 5 |
| *** 2nd Mid-Term Exam *** | | | | |
| Dec | 12 | Neutron Stars. | 14 | |
| | 17 | Black Holes. | 14 | |
| | 19 | The Planetary Systems of Other Stars. | – | |
| | ... Galaxies | | | |
| | 24 | The Milky Way: Our Galaxy. | 15 | HW 6 |
| | 26 | *Thanksgiving* | | |
| | 1 | Sagittarius A*: Our Galaxy's Center | 15-4 | |
| 3 | Other Galaxies | 16, 17 | | |
| 8 | Cosmology and Galaxy Formation. | 18 | HW 7 | |
| 10 | Review/Overview. | | | |
| Dec | 15 | *** FINAL EXAM: 8:00 AM - 10:00 AM *** | | |

The “Reading” column refers to chapters in Seeds “Stars and Galaxies”. Thus “15-4” is chapter 15, section 15-4, while “14” is all of chapter 14.