ASTR 404 Syllabus

Fall 2016

About this course

This course is a quantitative introduction to stellar astrophysics. Students are expected to have a PHYS 2xx-level understanding of mechanics and electromagnetism and an ASTR 210-level understanding of astronomy. Physical topics in thermodynamics, quantum and statistical mechanics, radiation transfer, and hydrodynamics will be introduced as needed. Some assignments will require the use of a computer to solve problems.

Instructors

Professor	Paul Ricker	TA	Celeste Lü
Office	201 Astronomy	Office	111 Astronomy
Hours	WTh 2-3	Hours	TBA
Email	pmricker@illinois.edu	Email	ylv4@illinois.edu

The course web site on Moodle, https://learn.illinois.edu/course/view.php?id=17641, will be used for all class assignments and announcements. You should be automatically given access when you register for the class.

Textbook

The textbook for this course is *An Introduction to the Theory of Stellar Structure and Evolution* 2d ed., by Dina Prialnik (Cambridge UP, ISBN 978-0-521-86604-0). A reserve copy of this book has been requested for Grainger Library. Reserve copies of previously used textbooks (particularly *An Introduction to Modern Astrophysics* 2d ed. by Carroll and Ostlie) are also available.

Evaluation

Evaluation of assignments and exams will be done on a point system as follows. Scores are tabulated to the nearest point.

Total		**1000 points**
Homework	10 x 50 points each =	500 points
Midterm exams	2 x 100 points each =	200 points
Take-home final exam		300 points

Letter grades will be assigned only for the final course grade using the following scale. Ranges indicate total points for each grade.

Letter grade	Point range
A	900 - 1000
B	800 - 899
C	700 - 799
D	600 - 699
F	0 - 599

Plus and minus grades will be given. The lower limit for each grade interval is subject to downward adjustment for the class if, in the instructor's judgment, the difficulty of the course work was too high. However, lower limits for each interval will not be increased.

Homework

Twelve homework assignments will be given via the course web site. They will be due online by 5:00 pm on the due dates specified in the schedule. **Your lowest two homework scores will be discarded.** Late assignments will be penalized 20 points per day (and thus will not be accepted after 5:00 pm two days after the due date). Homework submission time will be determined by the Moodle server's clock. To avoid misunderstandings due to differences in clocks, you should not wait until the last minute to submit your homework.

Homework assignments must be uploaded to the course web site in **Portable Document Format (PDF)**. Other formats will not be accepted. If you prefer to write out your assignments longhand, you may submit them in this form provided that you scan them into PDF (free smartphone apps exist to make this relatively painless; ask for suggestions).

Exams

Two in-class midterms will be given. Each will cover new material up through the class two meetings prior to each exam date (see schedule for dates). A **comprehensive final exam** will also be given; this will be a take-home exam, and the due date and questions will be posted on the course web site. The final exam questions will be available beginning on the Reading Day at the end of the last week of classes. **Note that final exam answers will not be accepted late**, though you may upload a draft set of answers and replace them with a final set at any time up until the deadline.

Make-up exams will be offered in well-justified circumstances, in accordance with sections 1-501, 1-502, and 3- 201 of the Student Code. At least one week's advance notice is required for approved school events (e.g., athletic events), religious observances, and other planned absences. Sudden illness requires documentation from McKinley Health Center or the Emergency Dean. The Emergency Dean must be contacted in other cases of unforeseen circumstances (e.g., death in the family). The format of the make-up may differ from the standard exam. In all cases, the make-up will be scheduled after the main exam.

ASTR 401 (Scientific Writing for Astronomers)

Students who have enrolled in the ASTR 401 section associated with this course will need to complete the following requirements in order to receive credit for ASTR 401 (and thus for the Advanced Composition general education requirement). **Note that ASTR 401 is a separate course: if you have signed up for it, you will receive separate letter grades for ASTR 401 and 404.**

ASTR 401 is intended to apply the principles of rhetoric and composition you studied in your Composition I course(s) to the subject of astronomy. You will produce a 20 page paper on a topic in

stellar astrophysics that conforms to the publication standards of an astrophysics journal article (as outlined by the author guidelines of *The Astrophysical Journal*, sans the requirement that the research be original). This paper will go through multiple drafts, and you will need to address the instructor's comments on each draft in order to receive full credit. Assignments will be submitted via the ASTR 404 course web site. **A detailed syllabus for ASTR 401 is available on the web site under "ASTR 401 Syllabus."**

Attendance

You are expected to attend class regularly. The lectures will include material that is not in the textbook, and this supplementary material will be included in homework assignments and exams. Experience shows that irregular or poor attendance is strongly correlated with weak academic performance.

Etiquette

For the benefit of your fellow students and your instructor, you are expected to follow these basic rules of decorum.

- Show up for class on time. If you must be late on a regular basis, please inform the instructor.
- Turn off or silence your cell phone before class begins.
- Laptops are not permitted. You may use a tablet to take notes only. If there are abuses of this policy, tablets may be banned also.
- Do not leave class early, and do not rustle papers or pack up bags in preparation for leaving before class is dismissed.
- Be attentive in class. Do not use headphones, read newspapers, or prop your feet up on other chairs or desks.
- Be respectful in your interactions with your fellow students and your teachers, whether in person or in cyberspace.

Accessibility

To insure that disability-related concerns are properly addressed from the beginning, students with disabilities who require reasonable accommodations to participate in this class are asked to see the instructor as soon as possible. All accommodations will follow the procedures given in sections 1-107 and 1-110 of the Student Code.

Honesty

Academic integrity lies at the core of the University's education and research missions; accordingly, you are expected to internalize the spirit as well as the letter of the University's rules on academic integrity. Infractions of these rules â€” including but not limited to cheating, plagiarism, falsification of data, and grade alteration â€” will be penalized as provided for by Article 1, Part 4 of the Student Code.
Discussing course material with your classmates is encouraged, but each student is expected to do his or her own work. You are allowed to work together on homework problems, but each student should write up an individual description of the solution. Some activities may allow you to work together in gathering data. Each student who participated in a joint measurement may make use of that jointly acquired data, but each student should prepare an individual report. If you are in any doubt about whether something is allowed or not, ask the instructor or TA.