

SYLLABUS FOR ASTRONOMY 309N: “LIVES AND DEATHS OF THE STARS”

<http://www.as.utexas.edu/astrometry/education/spring12/dinerstein/309n.html>

Course Unique No. & Semester: 47645, Spring 2012

Class Meetings: Tues. & Thurs., 11:00 AM – 12:15 PM, Welch 3.502

Instructor: Professor Harriet Dinerstein, RLM 16.324

Instructor Contact Info: 471-3449, harriet@astro.as.utexas.edu

Teaching Assistants: John Barentine & Thomas Gomez, RLM 16.312

T.A. Contact Info: 471-8275, jcb@astro.as.utexas.edu; gomezt@astro.as.utexas.edu

Pre-Exam/Quiz Help Sessions: Wed., 4:30 – 5:30 PM, RLM 15.216B

Office Hours: To be announced

WHAT THIS CLASS IS ABOUT:

This class is one of several special-topics classes for non-science majors, intended to follow the one-semester Introductory Astronomy class (usually Ast 301). While we will remind you about some things you might have forgotten since your introductory class, you are expected to be familiar with the basic concepts and terms covered in introductory astronomy courses. For Spring 2012, the 309 topic choices range from The Solar System (Ast 309S) to Galaxies, Quasars, and the Universe (Ast 309R).

Note that there are two sections of Ast 309N. The one taught by Prof. Wheeler (MWF 2 PM) focuses on cosmic explosions, black holes, etc. The present section will cover the nature and life histories of all kinds of stars, from normal to exotic. This includes properties of our own Sun, the planetary systems around other stars, the birth of stars in dark dusty clouds, and how stars age and die, leaving behind such weird objects as neutron stars and black holes. In addition to covering recent discoveries, we will examine the process of research and puzzling out the solutions to apparent mysteries. My goals are that you learn some interesting facts and ideas, understand more of how scientific research advances, and be able to understand news reports on astronomy in context, as well as to recognize whether they are plausible or not.

COURSE BOOK AND RESOURCES:

I have chosen the book “Extreme Stars” by James Kaler as our required reading. Although the content is not very up to date, it is a handy and relatively inexpensive little book that covers many basic principles, and provides a good review and starting point for the course material. If you find you have gaps in your background, you might want to consult an(y) introductory astronomy textbook. As we come to each new topic, I will provide suggested websites, etc. for additional information.

Some Power Point slides will be shown in class, and selected slides will be posted on the class website. In addition, rather than posting answers to quiz and exam questions, I post “feedback” files for tests and some in-class activities. These are designed to help the students by highlighting the correct answers, explaining why incorrect answers are wrong, addressing common misconceptions and so on.

COURSEWORK AND GRADING:

My grading philosophy is that all students should have the opportunity to earn a grade based on their own individual work, so I do not set quotas for A's and B's. After the first in-class exam, I will set up a table of numerical score – letter grade equivalents, and (barring unusual circumstances) will keep to that table for the rest of the semester. That is, the hurdles will not be raised on later exams. I do use +, – grades. The test/assignment schedule and credit breakdown will be as follows:

Hour Exams: There will be 3 in-class exams with multiple-choice and short-essay questions. Each is worth 25% of the semester grade, for **75% total**. Tentative dates (*subject to change*) are: Feb. 23, Mar. 29, and Apr. 26. If you miss any exam, your make-up exam will be given on May 3, the all-purpose make-up day. Students who have not missed any exams but would like a chance to try to improve their course grade are also welcome to make use of the May 3 make-up exam opportunity.

Quizzes: We will have several quizzes, consisting of 2 short-answer questions, that also serve as practice for the essay portion of the exams. The best 5 quiz scores will count towards **10% of the semester grade**. There will be no make-ups given for missed quizzes, since more than 5 quizzes will be given (either 6 or 7).

Participation and Other Assignments: **The remaining 15%** of the semester grade will come from credit earned in various ways including in-class activities, attending UT Star Parties (up to 2 can count) and public lectures (when available), and reports on relevant articles or websites (details to be announced).

CLASSROOM EXPECTATIONS AND POLICIES:

I expect students to attend class regularly and to stay engaged with class activities. This is the best and most efficient way to become familiar with the material and to be well prepared for quizzes and exams. I understand that students occasionally become ill, or have an urgent conflict, and have arranged the classwork to make allowances for missing a couple of classes. Consequently, I do not provide make-up opportunities for *individual* missed quizzes or assignments, but instead expect students to make up the credit through other, equivalent opportunities.

In order to make class time more valuable and minimize distractions for classmates and the instructor, there will be **no cell phone use**, including texting, during class (and make sure the ringer is off!). I also very strongly discourage the use of laptops in class. They are a major distraction to the user and others. If you must use them, for example to take notes, you must sit in the last two rows of the auditorium.

KEY DATES FOR THE SPRING 2012 SEMESTER:

First class meeting: Tues., Jan. 17

Last day of official add/drop period: Fri., Jan. 20

Last day to add a class, or to drop with a possible refund: Wed., Feb. 1

Last day to drop a class except for **non-academic** reasons: Mon., Apr. 2

Last class meeting and date of universal make-up exam: Thurs., May 3

PRELIMINARY SCHEDULE OF TOPICS: (subject to change)

Dates	Topics	Reading in Kaler
1/17-19	Our Sun: The Nearest Star	ch. 1, p. 1–12
1/24-26	Sizing up Stars; Review of Principles of Light	ch. 1, p. 12–23
1/31-2/7	Cool things: Brown dwarfs & Exoplanets	ch. 2
2/9-14	Red giants: aging Sun-like stars	ch. 3
2/16-21	Planetary nebulae: the end of a giant	ch. 4
2/28-3/8	The lives & explosive deaths of massive stars	chs. 5 & 6
3/20-4/5	White dwarfs, neutron stars, & black holes	ch. 7
4/10-12	Stellar birth and infancy: hidden from view	ch. 8
4/17-24	Old, metal-poor stars; the “first” stars	ch. 9
5/1	A few oddballs, & suggestions from the class	ch. 10

GENERAL INFORMATION FOR ASTRONOMY COURSES:

Scholastic Integrity/Academic Dishonesty: The University of Texas at Austin’s honor code is posted at http://deanofstudents.utexas.edu/sjs/spot_honorcode.php. More information is provided at <http://deanofstudents.utexas.edu/sjs/index.php>; see links on “academic integrity” and “plagiarism.” We take these rules seriously. *We will not tolerate copying or cheating on exams, homework, or other class work.* If we find duplicated work or evidence of cheating, neither student involved will receive credit. We may also impose stronger academic penalties depending on the circumstances, not excluding an F for the course or a report to the Dean of Students.

Getting the Help You Need: There will be several regularly scheduled opportunities to get help with assignments or understanding the material each week. Help sessions will be held most Wednesday afternoons from 4:30 – 5:30 PM in RLM 15.216B, and there will be several weekly office hours with the TAs and instructor. Please try to come at one these designated times, if possible, since we have other responsibilities and will not necessarily be available at other times. However, if you cannot make the regular office hours, please contact us to set up an alternate time. You can also send questions by email. If your question is about procedures, check the Frequently Asked Questions page on the class website *first*, to see whether the answer is already there.

Students with Disabilities: Upon request, the University of Texas at Austin provides academic adjustments for qualified students with disabilities. Contact the Office of the Dean of Students at 471-6259, or (TTY) 471-4641, email to ssd@uts.cc.utexas.edu or see <http://deanofstudents.utexas.edu/ssd/>. If you have a recognized disability, you need to inform the instructor as soon as possible in order to make arrangements.

Star Parties and Special Events: The Astronomy Department offers evening Star Parties on campus most Wednesdays, Fridays, and Saturdays. Details on when and where are posted at <http://outreach.as.utexas.edu/public/viewing.html>. You can earn up to two participation credits by attending star parties, if you obtain a signed slip from the person in charge. *Warning to the naïve:* Star parties are held only when weather permits. They are cancelled when it’s too cloudy to see anything! There may also be one or more public lectures on astronomy during the semester, which you can attend for participation credit (with a short write-up). These will be announced in class.