ASTRONOMY 301
Introduction to Astronomy
Spring 2015

Unique No. 47330
MWF 1:00-1:50 pm, WEL 3.502

PROFESSOR
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Office Hours: Wednesday 12-1 pm (or by appointment)

Required Textbook and Software:

Textbook: **We're Texas: Astronomy** by Winget, Hermes, and Shawl et al. (any edition).

Software: **Top Hat.** We will be using the Top Hat (www.tophat.com) classroom response system in and out of class. You will be able to submit answers to in-class questions and homework questions using Apple or Android smartphones and tablets, laptops, or through text. We will also take informal surveys using Top Hat. You can visit tinyurl.com/TopHatStudentGuide for the Student Quick Start Guide which outlines how you will register for a Top Hat account, as well as providing a brief overview to get you up and running on the system. An email invitation will also be sent to your email account (if you don't receive this email, you can register by visiting our course website tophat.com/e/052329). Top Hat will require a subscription. Please see the announcement for our course on Canvas about this.

LEVEL OF COURSE
This course is a descriptive survey of the field of astrophysics. I will not emphasize mathematics. An understanding of basic algebra, however, will be helpful to you. The course will provide you with a perspective on the universe: its scale, structure, contents, and evolution. It will cover major scientific revolutions in human thought including special and general relativity and quantum mechanics, up to and including our current struggles to understand dark matter and dark energy.

EXAMS AND GRADES
There will be a total of four in-class exams. Your grade will be determined from the best three exam scores, weighted 20% each. Three major homework assignments, equally weighted, will constitute 15% of your overall grade. We will assign small daily homework questions and ask in-class questions using Top Hat; this will comprise another 15% of your grade. An astronomical observing assignment will account for an additional 10%. You have the **option** to complete a semester project, on a topic of your choosing to replace your lowest exam score (it may not replace a 0). The TAs or I must approve the topic in advance of the topic deadline. As a result of this grading policy, **we do not give make-up exams**. This course is finished on Dec. 4; there will be no exam during the finals period.

At the end of the semester, your total points out of 200 may translate to the following letter grades:

A: 200-180; B: 179-160; C: 159-140; D: 139-120; F: 119-0

We reserve the right to award students immediately below a grade boundary a "plus" grade (e.g., B+, C+), based on attendance and in-class participation—this will be gauged using Top Hat software attendance counts and questions posed in-class. Note that because there is no "A+" in our current system, we assign no "minus" grades.

OPTIONAL SEMESTER PROJECTS

The optional semester project is very open-ended, but should relate astronomy to something you are passionate about. This is a chance for you to be creative, and spend time researching and thinking about astronomy from a perspective that interests *you*. We want you to learn and enjoy the experience, mindful also that the optional project counts as much as an exam, so the work you put into it will be reflected in the grade you get out of it. The deadline for optional semester project approval is **Friday, 20 February 2015**. Please double check with Jason or Jaeyoung to make sure that we have your topic written down and not just simply verbally approved. You may not work in groups for the optional project; all work must be your own. Stuck without an idea? Start with these questions: What is a major life interest—an academic major or a hobby? What do you enjoy creating or doing, and how can you connect it to astronomy? If you are having trouble finding a connection of an interest or passion to astronomy, come see us; we are here to help you! The **firm deadline** for turning in projects is **Monday, 4 May 2015**. You may turn projects in during class or during our office hours. You are free to submit your project earlier than the firm deadline. The projects will be graded about a week after the last class day. Project grades will be posted on Canvas. After they are graded, the projects will most likely end up in my office or the adjacent research lab for safekeeping. Please schedule a time via email to pick them up from us once the semester is complete.

DUMB QUESTIONS

There is no such thing as a dumb question. **ASK**!!

COURSE WEB SITE

Please visit the Canvas page for this course to find regular updates. We will also use **Top Hat** web-based resources.

STUDENTS WITH DISABILITIES

Upon request, the University of Texas at Austin provides appropriate academic adjustments for qualified students with disabilities. You can find resources and contact information online at the web site for the Disability Resources Center: *http://www.utexas.edu/disability*.

TENTATIVE TEST SCHEDULE

There are four in-class exams. We will hold a review the evening before each exam, although not necessarily in our classroom. We will announce the rooms in class as soon as they are scheduled. We have currently estimated that the four multiple-choice exams (it is subject to change) will be on the following dates.

Exam 1: Feb 13; Exam 2: Mar 11; Exam 3: Apr 13; Exam 4: May 8

TENTATIVE COURSE OUTLINE (WITH SUGGESTED READING)

Week 1 (1/21,23)	Course Introduction; A Tour of the Universe (Ch. 1,2)
Week 2 (1/26,28,30)	The History of Science; Basic Concepts; The Night Sky (Ch. 3,4)
Week 3 (2/2,4,6)	The Earth and Moon

	(Ch. 6)	
Week 4 (2/9,11,**13**)	The Earth and Moon	**Exam 1**
	(Ch. 6)	
Week 5 (2/16,18,**20**)	The Terrestrial Planets	
	(Ch. 7)	
Week 6 (2/23,25,27)	The Jovian Planets	
	(Ch. 8)	
Week 7 (3/2,4,6)	Comets; Solar System Formation; Planets Around Other Stars	
	(Ch. 5)	
Week 8 (3/9,**11**,13)	Light, Matter, and Energy	**Exam 2**
	(Ch. 9)	
Week 9 (3/23,25,27)	Light; Telescopes	
	(Ch. 10)	
Week 10 (3/30,4/1,2)	Stars and Their Radiation	
	(Ch. 11)	
Week 11 (4/6,8,10)	Stellar Classification	
	(Ch. 12,13)	
Week 12 (4/**13,**15,17)	Star Formation; How Stars Shine	**Exam 3**
	(Ch. 14)	
Week 13 (4/20,22,24)	The Death of Stars; Black Holes; Star Clusters	
	(Ch. 15,16)	
Week 14 (4/27,29,5/1)	Galaxies; Active Galactic Nuclei; Supermassive Black Holes	
	(Ch. 17,18,19)	
Week 15 (5/**4**,6,**8**)	The Big Bang; Cosmology (Ch. 20)	**Exam 4**