



ASTR 101: Descriptive Astronomy

Spring 2017 ONLINE



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Help Session: M 10:30-11:30am @ OC 4512
Help Session: W 10:30-11:30am @ www.cccconfer.org

<http://blackboard.miracosta.edu>

Blackboard is your course management system.

Intelligence, ability, and talent are NOT fixed!

Required Materials

Lecture Tutorials for Introductory Astronomy, 3e



Prather et al. © 2013
Pearson Addison-Wesley, ISBN: 0321820460

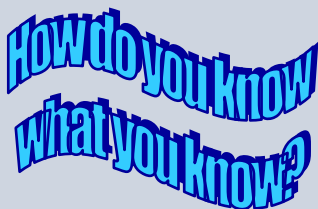
access to Discovering the Universe, 10e, Comins & Kaufmann © 2015
W.H. Freeman & Co., ISBN: 1464140863 (but any format will do)

reliable internet access

email, checked frequently

time management skills & proper commitment

an open mind...



Weekly Deadlines

- Weeks start Monday @ 12:00am (Sunday night @ midnight) and end at 11:59pm the following Sunday night.
- Assignments are due Thursdays and Sundays.

Hmmm...

- What causes seasons? Moon phases?
- Why does the night sky change during the year?
- How does a telescope work?
- Do stars die?
- How does the Sun shine?
- Are there planets around other stars?
- How many galaxies are there?
- How big is the universe?
- Are we alone?

The entire Universe...in one semester!

This introductory course surveys a broad range of topics in astronomy while emphasizing the nature and processes of physical science. There are no prerequisites, but realize that *astronomy is a physical science*. This course emphasizes primarily *qualitative* comprehension but *quantitative* reasoning is also required. I hope to convey to you some of the excitement and satisfaction that astronomers derive from investigating the physical world around us while simultaneously inspiring you to do the same.

You cannot teach a man; you can only help him to find it within himself.

Galileo said this hundreds of years ago. Socrates knew it thousands of years ago. Research shows that humans must construct their own knowledge: *cognitive conflict and rigorous intellectual discourse are required to elevate your understanding*. As facilitator, I will guide you through carefully designed intellectually engaging learning sequences that elicit your preconceptions, confront conflicting ideas, and resolve issues. Successful students help each other become metacognitive and develop their critical reasoning abilities, quantitative literacy, evidence-based problem-solving skills, and communication skills by practicing regularly. **It is not what I do that matters; it is what you do. Ultimately, you are responsible for your own level of preparation, engagement, and mastery.**

Policies

- Late/Make-up Work:** None, for any reason. There are safeguards built in; see the grading scale. Successful students plan accordingly.
- Preparation & Attendance:** Mandatory & frequent. Lecture alone is insufficient for developing a robust understanding so our active learning environment is an opportunity to work towards mastery. By engaging earnestly with your peers you will develop a more expert-like understanding. Successful students make a schedule and manage their time carefully to ward off procrastination and distractions. Successful students have all materials, are prepared, start early, and participate fully in all aspects of the course.
- Collaboration:** Necessary. Refer to above course philosophy and previous bullet point.
- Help:** In person and online sessions are open to all students (see above). Earn bonus points for participating in sessions after your first one. Appointments also count.
- Class Etiquette:** Though obviously a virtual classroom, exercise good judgment and practice civility in all course-related communications and with all participants. Any disruption of the learning environment may result in your removal from class and possibly disciplinary action. See MiraCosta [BP 5500](#), [AP 5500](#), [AP 5520](#), and the [college catalog](#).
- Academic Integrity:** Required. Your work must be unique and original, even after collaborating. Any form of academic dishonesty may result in the maximum possible penalties. See MiraCosta [BP 5500](#), [AP 5500](#), [BP 5505](#), [AP 5505](#), [AP 5520](#), and the [college catalog](#).
- Instructor Contact:** I will communicate with you via email, embedded announcements on Blackboard, discussion forums, help sessions, and feedback on assignments. Expect return emails within 48 hours, *excluding weekends and holidays*.

Workloads for College Courses

You should expect to spend approximately three hours per week outside of class for each unit of credit attempted (full term courses). A full term in person Astro 101 class meets three hours per week so you must spend this amount of time in your virtual class on lectures, Lecture Tutorials (LTs), discussions, etc. *Note that this does not include the out-of-class time (reading, homework, help sessions, reworking LTs & RTs, practicing, etc.)*.

Overall %	Grade
≥ 90	A
80 – 89	B
70 – 79	C
60 – 69	D
≤ 59	F

Learning Objectives:

- Compare and contrast models of lunar phases. Defend the correct one, and use it to interpret observations and generate predictions.
- Determine how the Earth's orientation with respect to the Sun correlates to seasons. Construct a model for planetary seasons and demonstrate the effects of axial tilt.
- Given a set of physical conditions, demonstrate an understanding of Newton's laws and gravitation by distinguishing variables from constant quantities and manipulating equations to predict the behaviors of masses.

Overarching Goals:

- Witness, appreciate, and employ the nature and process that is science through the eyes of astronomy.
- Appreciate the practicality and relevance of astronomy to your everyday life.
- Comprehend the main ideas and develop the "big picture".
- Develop critical reading, thinking, and problem-solving skills useful in a variety of situations.
- Foster a lifelong interest in astronomy and relevant current events.
- Look up once in awhile!

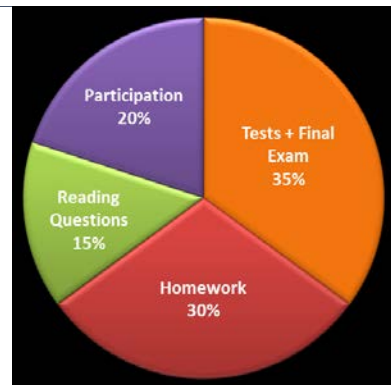
Stargazing Opportunities

[MiraCosta Astronomy](#) holds free public star parties during regular semesters. See the [website](#) or call 760.757.2121 x6201.

I do not give grades; you earn your grade.

Everyone starts with a zero. Your grade is based on your absolute score; there is no curve. It is in your best interest to help each other learn astronomy. Incompletes can only result from "incomplete academic work for unforeseeable, emergency, and justifiable reasons." See the [college catalog](#) for more information.

- Participation (20%)** – Some activities will be graded primarily on your level of preparation and engagement. Some may be timed.
- Reading Questions (15%)** – Multiple-choice reading questions (RQs) are required each week. Each set is untimed and allows two attempts but you must finish each time you start. The higher of the two attempts per set contributes to your grade. Reading assignments are for the text [DTU 10e](#) and a Reading Guide is available on [Blackboard](#). **Both the Student Questionnaire (ungraded) and Syllabus Quiz (graded) are online attendance requirements: you will be dropped if you do not have nonzero/nonblank grades on both before their deadlines.**
- Homework (30%)** – *Significant emphasis is placed on assessing how well you explain your evidence-based reasoning. [Successful students master this skill.](#)* You will greatly benefit from working outside of class and with assistance during help sessions to ensure you fully understand the evidence and reasoning that leads to correct answers. This will properly prepare you for exams. All Lecture Tutorials (LTs) and their pre-/post-LT questions deserve a significant amount of out-of-class practice time. Most graded homework will be in the form of Ranking Tasks (RTs), all of which will be emphasized on tests. *[Successful students practice all RTs and LTs in sequence with the flow of topics in the course \(see the course calendar\) and again multiple times during the course.](#)* With each test you will turn in a "portfolio" of your 10 best RTs from that test's material. They will be graded using the rubrics posted on [Blackboard](#) and the final score of each portfolio scaled out of 25 points. **The RTs are PDF "fillin" forms that require using Adobe Reader outside of a web browser. Opening the files inside of a web browser and/or using other PDF handlers will not produce the required results!** A few assignments are not included in the portfolios and have separate due dates in the course calendar, e.g. special discussion boards, Galaxy Zoo, etc.
- Scaled Participation and Homework** – Both the "Participation" and "Homework" portions of your grade will be scaled as indicated at right. This can alleviate an occasional low score and/or missed assignment but will not make up for substantial deficits. **Note that this does not apply to your overall course grade.**
- Tests + Final Exam (35%)** – There are five regular tests, each over material covered since the previous one, and a cumulative final exam. All are multiple-choice and timed (60 minutes: Tests 1-4; 110 minutes: Test 5 & Final). For the cumulative final exam only you may have one *handwritten* 8-1/2" × 11" cheat sheet. The lowest of the six scores will be dropped.



Score (%)	Scaled
≥ 86.0	A
74.0 – 85.9	B
62.0 – 73.9	C
50.0 – 61.9	D
≤ 49.9	F

Special Accommodations

A student with a verified disability may be entitled to appropriate academic accommodations. Contact the [Disabled Students Program and Services Office](#) at 760.795.6658.

Important Dates

Your responsibility!

23 Jan	First day of classes (full term)
27 Jan	Last day to add this course
03 Feb	Last day to drop w/no record and be eligible for refund
24 Feb	Last day to file for P/NP
27 Apr	Last day to drop with a W
22-26 May	Final Exams
26 May	End of term; Commencement