

ASTRONOMY 10

De Anza College

Section 1

M - F, 7:30 - 8:20 am

De Anza Planetarium (PLT)

Marek Cichanski

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Office hours: M thru F 9:30-10:20am; other times by appt.

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IMPORTANT: This syllabus document is only a `condensed' version of the class website! For all of the information you need about this course, see the class website at: <http://mrcgeoastro.com/astro10/index.html>

TEXTBOOK

Stars and Galaxies, 9th edition by Seeds & Backman

(You can use the 8th edition if you want - the reading assignments and `What2Know' list have both the 8th and 9th edition pages listed.)

STUDENT LEARNING OUTCOMES

Appraise the benefits to society of astronomical research concerning stars and stellar systems.

Evaluate the impact on Earth's characteristics of the evolution of stars and stellar systems.

Evaluate astronomical news items or theories about stellar astronomy based upon the scientific method.

Astronomy 10 lecture schedule, Winter 2017 Morning Class

Important: Dates of TESTS are fixed, but the *lecture topics* (shown in *italics*) are tentative. For example, we may or may not cover "Observatories..." on Jan 31st, depending on how quickly we cover the preceding material.

Each test covers the material since the last test. See the What2Know list for details.

Final Exam is comprehensive - it covers the whole quarter.

		MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Wk. 1	Jan	Class Enrollment ⁹ <i>Our cosmic context</i>	¹⁰ <i>Diurnal apparent motions in the sky</i>	¹¹ <i>Annual apparent motions in the sky</i>	¹² <i>Constellations and apparent star magnitudes</i>	¹³ <i>Moon phases</i>	¹⁴
Wk. 2	Jan	¹⁶ HOLIDAY	¹⁷ <i>Eclipses</i>	¹⁸ <i>Models of the universe: Geocentric vs. Heliocentric</i>	¹⁹ <i>Galileo's Discoveries</i>	²⁰ <i>Tycho's data and Kepler's laws</i>	²¹ Last day to add
Wk. 3	Jan	²³ <i>Newton's Laws: What causes a change in motion?</i>	²⁴ <i>Newton: Gravity, orbits, and tides</i>	²⁵ <i>Einstein: Special Relativity</i>	²⁶ <i>Einstein's General Relativity: Gravity and curved spacetime</i>	²⁷ <i>How telescopes work</i>	²⁸
Wk. 4	Jan/ Feb	³⁰ TEST 1	³¹ <i>Observatories on Earth and in space</i>	¹ Review Test 1	² <i>Atoms and light</i>	³ <i>Spectroscopy</i>	⁴
Wk. 5	Feb	⁶ <i>Heat and light: How hot objects glow</i>	⁷ <i>Ways of measuring distances</i>	⁸ <i>The Sun: Structure, fusion, magnetic field</i>	⁹ <i>Stars: What we can observe</i>	¹⁰ <i>Stars: Figuring out temps, lum's, sizes</i>	¹¹
Wk. 6	Feb	¹³ <i>Stars: Classification and the H-R diagram</i>	¹⁴ <i>Stars: Figuring out their masses</i>	¹⁵ <i>Between the stars: Nebulae</i>	¹⁶ <i>Between the stars: The interstellar medium</i>	¹⁷ HOLIDAY	¹⁸ HOLIDAY
Wk. 7	Feb	²⁰ HOLIDAY	²¹ TEST 2	²² <i>Star formation: Protostars and nebulae</i>	²³ Review Test 2	²⁴ <i>Star formation: Structure and balance in stars</i>	²⁵
Wk. 8	Feb/ Mar	²⁷ <i>Stellar evolution: Low-mass stars like the Sun</i>	²⁸ <i>Stellar evolution: High-mass stars</i>	¹ <i>Supernovae: Exploding stars</i>	² <i>Star clusters</i>	³ <i>Variable stars</i> Last day to drop with "W" grade	⁴
Wk. 9	Mar	⁶ <i>White dwarfs and 'planetary' nebulae</i>	⁷ <i>Neutron stars</i>	⁸ <i>Black holes</i>	⁹ <i>The discovery of the Milky Way's structure</i>	¹⁰ <i>Our home galaxy: The Milky Way</i>	¹¹
Wk. 10	Mar	¹³ TEST 3	¹⁴ <i>Galaxies beyond the Milky Way</i>	¹⁵ Review Test 3	¹⁶ <i>Evidence for dark matter in galaxies</i>	¹⁷ <i>Colliding galaxies and our future in 'Milkomeda'</i>	¹⁸
Wk. 11	Mar	²⁰ <i>Hubble's Law and the expanding universe</i>	²¹ <i>The fireball and its relics: Probing the early universe</i>	²² <i>Cosmological evidence for dark matter</i>	²³ <i>Dark energy and the accelerating universe</i>	²⁴ <i>Cosmic inflation and large-scale structure</i>	²⁵
Wk. 12		²⁷ FINAL EXAM 7:00 - 9:00 am	²⁸	²⁹	¹	²	³

Astronomy 4 reading assignments, Winter 2017 Morning Class

The reading assignments shown below should be done BEFORE each class.

Some assignments apply to both the 8th and 9th editions of "The Solar System" by Seeds and Backman.

Where the pages are different between the two editions, the 8th and 9th edition pages are listed separately.

		MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Wk. 1	Jan	<i>Class Enrollment</i> 9 <i>Our cosmic context</i>	<i>Diurnal apparent motions in the sky</i> 10 Ch. 1, plus p. 17-19	<i>Annual apparent motions in the sky</i> 11 p. 20-25	<i>Constellations and apparent star magnitudes</i> 12 p. 12-16	<i>Moon phases</i> 13 Sec. 3-1	14
Wk. 2	Jan	16 HOLIDAY	<i>Eclipses</i> 17 Sec. 3-2 through 3-4	<i>Models of the universe:</i> 18 8th: p. 52-63 9th: p. 52-64	<i>Galileo's Discoveries</i> 19 8th: p. 70-73 9th: p. 71-74	<i>Tycho's data and Kepler's laws</i> 20 8th: p. 64-69 9th: p. 65-70	21 Last day to add
Wk. 3	Jan	<i>Newton's Laws: What causes a planet to orbit the Sun?</i> 23 8th: p. 78-81 9th: p. 80-84	<i>Newton: Gravity, orbits</i> 24 8th: p. 82-91 9th: p. 84-94	<i>Einstein: Special Relativity</i> 25 8th: p. 92-94 9th: p. 95-96	<i>Einstein's General Relativity: Spacetime and gravity</i> 26 8th: p. 95-97 9th: p. 97-99	<i>How telescopes work</i> 27 8th: p. 100-109 9th: p. 104-112	28
Wk. 4	Jan/ Feb	30 TEST 1	<i>Observatories on Earth and in space</i> 31 8th: p. 109-123 9th: p. 112-126	1 Review Test 1	<i>Atoms and light</i> 2 8th: p. 126-130 9th: p. 131-134	<i>Spectroscopy</i> 3 8th: p. 130 and Sec. 7-3 9th: p. 134 and Sec. 7-3	4
Wk. 5	Feb	<i>Heat and light: How hot objects are</i> 6 8th: p. 131-133 9th: p. 135-137	<i>Ways of measuring distances</i> 7 Sec. 9-1 and 9-2	<i>The Sun: Structure, fusion, magnetic field</i> 8 Chap. 8	<i>Stars: What we can observe</i> 9 Reread 9-2, plus Sec. 9-3	<i>Stars: Figuring out their masses</i> 10 "Luminosity, Radius, and Temp." in Chap. 9	11
Wk. 6	Feb	<i>Stars: Classification and evolution</i> 13 8th: p. 178-183 9th: p. 185-189	<i>Stars: Figuring out their masses</i> 14 Sec. 9-5 and 9-6	<i>Between the stars: Nebulae</i> 15 8th: p. 198-202 9th: p. 205-207	<i>Between the stars: The interstellar medium</i> 16 8th: p. 202-214 9th: p. 208-220	17 HOLIDAY	18 HOLIDAY
Wk. 7	Feb	20 HOLIDAY	21 TEST 2	<i>Star formation: Protostars and nebulae</i> 22 Sec. 11-1 thru 11-3	23 Review Test 2	<i>Star formation: Structure and balance in stars</i> 24 Sec. 11-4 and 11-5	25
Wk. 8	Feb/ Mar	<i>Stellar evolution: Low-mass stars like the Sun</i> 27 Sec. 12-1 and 12-2	<i>Stellar evolution: High-mass stars</i> 28 Reread 12-2	<i>Supernovae: Exploding stars</i> 1 Sec. 13-3	<i>Star clusters</i> 2 Sec. 12-3	<i>Variable stars</i> 3 Sec. 12-4 Last day to drop with 'W' grade	4
Wk. 9	Mar	<i>White dwarfs and 'planetary' nebulae</i> 6 Ch. 13 & Sec. 13-1	<i>Neutron stars</i> 7 Sec. 14-1	<i>Black holes</i> 8 Sec. 14-2 and 14-3	<i>The discovery of the Milky Way's structure</i> 9 Sec. 15-1	<i>Our home galaxy: The Milky Way</i> 10 Sec. 15-2 thru 15-5	11
Wk. 10	Mar	13 TEST 3	<i>Galaxies beyond the Milky Way</i> 14 8th: 336-341 & 349-351 9th: 349-352, 354-355, 362-365	15 Review Test 3	<i>Evidence for dark matter</i> 16 8th: p. 345-349 9th: p. 358-361	<i>Colliding galaxies</i> 17 "Colliding Galaxies" and 2-page spread on "Interacting Gx's"	18
Wk. 11	Mar	<i>Hubble's Law and the expansion of the universe</i> 20 "The Hubble Law" in Ch. 16, and: 8th: 374-379, 388-389 9th: 391-395, 404-405	<i>The Cosmic Background Radiation</i> , "Photon and Particle Soup" and: 8th: 382-384, 9th: 398-401 8th: 374-379, 388-389 9th: 391-395, 404-405	<i>Cosmological evidence for dark matter</i> 22 8th: "Dark Matter in Cosmology" 9th: "Ordinary Matter and Dark Matter"	<i>Dark energy and the expansion of the universe</i> 23 Sec. 18-4 (minus "Inflation")	<i>Cosmic inflation and the formation of large-scale structure</i> 24 "Inflation" from Sec. 18-4	25
Wk. 12	Mar/ Apr	27 FINAL EXAM 7:00 - 9:00 am	28	29	1	2	3

GRADES

step 1:

You take various tests and the final

Test 1

Test 2 **200 points each**

Test 3

FINAL EXAM **300 points**

step 2:

I drop the lowest midterm score

-200pts = **400 points of midterms**

*There's no way I'm gonna drop **this** one...*

step 3:

I calculate the final grade.

Your final percentage =

The points you earned, after dropping lowest scores as described at left

700 possible points

I then round your final percentage to the nearest whole percent, and use the following grading scale:

Notes:

1) A %-age like 88.7 rounds to an 89, so it's an A.

89-100	A
79-88	B
68-78	C
57-67	D
<57	F

If something causes you to miss a test, that will be the one that you drop. This means that there are **NO MAKEUPS**.

You have to take all of your midterms and your final exam with **YOUR SECTION** of the class.

I'm afraid that my schedule won't allow me to give you a final at a different time in order to fit your vacation.

You'll need to plan around the final.

Astronomy 10 Rules and Procedures

During the first few weeks of class, I will collect state-mandated attendance data using a sign-in sheet and/or seating chart.

ADDING THE CLASS:

If you add the class, *make sure that your add code has worked, and that you have been properly added to the class.* If not, it is your responsibility to check with the Admissions/Records office to find out how this can be corrected. After the end of Week 2, the College cannot process a late add, and you could find yourself not enrolled and not receiving a grade for the course, if you're not registered!

DROPPING THE CLASS:

I would like to see everyone complete the course, earn a good grade, and become excited about science. However, the realities of life sometimes get in the way. You should assess your situation realistically throughout the quarter.

If you decide to drop the class, you must do so by the final date to drop with a "w", or you risk receiving an "F" if you haven't earned enough points to pass the class.

Let me re-emphasize that: If you decide to drop the course, it is *your* responsibility to go to the registrar and drop yourself. The deadline is the end of the eighth week.

VERY IMPORTANT INFORMATION ABOUT DROPPING AND THE END OF THE QUARTER:

For many years, De Anza students have been given the impression that "your instructor can drop you" after the end of the 8th week. **THIS IS CHANGING!** We are no longer allowed to give a "W" on the final grade form. Additionally, I will NOT be able to drop you using a blue 'Addendum to Class List' form after the end of the 8th week. If you have a personal hardship after the end of the 8th week, you will have to request a "Late Drop" using a white form called "Petition for Exception to Registration Policies", which will be evaluated by the Registrar and/or the Academic Council.

CLASS ENVIRONMENT:

Remember that we have all chosen to be in this class. We should thus have an environment that fits this choice.

Talking to your neighbor(s) while I'm lecturing, reading non-course material in class, doing outside homework, and using wireless devices of any kind are not allowed in class, and may result in dismissal for the remainder of the class period.

Such dismissal will count as an absence.

TESTS:

After you start working on a test or quiz, you must hand it in before leaving the room.

If you arrive late for a test or quiz, you won't be given extra time to finish it.

On tests and quizzes, once the first person has turned it in and left the room, no further latecomers will be given tests.

If you find yourself wanting to use a calculator on a test (such as to solve an extra-credit question that involves a numerical calculation), you'll need to use a regular calculator; you can't use a cell-phone calculator.

NOTICE:

Cheating on any exam or project is grounds for a failing grade in the class and a permanent note in a student's file. "Cheating" is defined (in this course) to be an effort by a student to obtain a grade by any means other than demonstration of that student's individual achievement in mastering the class material and/or fulfilling terms of a project.

Further grounds for expulsion from the class include any activity which interferes with others' ability to benefit from the class (such as chronic distracting behavior) or which degrades the Planetarium's function or environment.