



SC 220 Astronomy
Winter, 2006
Instructor: Mark Z. Tan

Contacting the Instructor

Class Times: Tuesday 18:30 to 21:15	Class Location: 633
Office Phone: 220 - 8246	Office: 502
Office Hours: Available by appointment	
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Course Objectives:

This introductory astronomy course will cover all aspects of modern astronomy. Backyard astronomy, space-based astronomy, the solar system, stars, galaxies and the universe on the largest scale will be discussed.

There is no formal laboratory component. However, an important aspect of the course will be a computerized observational exercise. This exercise requires that students use the desktop planetarium program *StarryNight* which comes with the textbook. The particular activities to be done, and the due date, will be announced in class.

The course material will stress conceptual understanding with minimal mathematical derivation. However, the world behaves in ways that can be understood with simple mathematical and physical concepts. Students can gain an appreciation for this by following straight forward examples which are carefully described in the Astronomer's Toolbox@ sections of the textbook. Assignments, a mid-term exam, and the final exam will emphasize mathematical questions.

Course Requirements:

Reading Quizzes	10%
Assignments	20%
Activity (<i>StarryNight</i>)	10%
In Class Test	20%
Final Exam	40%

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Required Text

- *Discovering the Universe* -7th Edition; N.F. Comins & W.J. Kaufmann III, Freeman & Co. 2005.

Important Dates

First day of Winter sessions classes: January 11

Last day of Winter session classes: April 19

Reading Week: February 20 to 24

Final Exam (2 hours): To be scheduled

Final Exam Period: April 21 to 26

Tentative Lecture Schedule

		Textbook Chapter:
Jan 17	<u>The Night Sky</u> Units of distance and angular size, seasons, time, lunar phases, eclipses.	1
Jan 24	<u>Planetary Motions</u> Historical overview, orbital motion, Kepler's laws, Newton's Laws	2
Jan 31	<u>The Nature of Light</u> Electromagnetic spectrum, black-body radiation, atomic structure, Kirchhoff's laws	3,4
Feb 7	<u>Telescopes</u> Modern methods in astronomy, reflectors and refractors, CCDs, the universe at other wavelengths.	3
Feb 14	<u>The Sun and Introduction to the Stars</u> The energy and structure of the Sun, its magnetic cycle and observable features. The magnitude scale and stellar distances.	9,10
Feb 20	<u>Reading Week</u>	
Feb 28	<u>The Nature and Lives of Stars</u> The interstellar medium and star formation. The sizes, luminosities and masses of stars. The HR diagram. Evening classes <u>not</u> cancelled	11,12
Mar 7	<u>The Deaths of Stars</u> Life after the main sequence and the formation of compact objects. Black Holes.	13,14
Mar 14	MidTerm Exam #1 <u>The Milky Way Galaxy</u> The size, structure and center of our galaxy. Evidence for dark matter	15

Mar 21	<u>Normal and Peculiar Galaxies</u> Spiral and elliptical galaxies. Quasars, radio galaxies and their central engines. Clusters of galaxies	16,17
Mar 28	<u>Cosmology</u> The expansion and fate of the Universe	18
Apr 4	<u>The Solar System</u> Introduction, the Earth and the Moon, the Terrestrial planets Evening classes <u>not</u> cancelled	Overview of chapters
Apr 11	<u>The Solar System</u> The Jovian planets	5 to 8
Apr 18	<u>The Drake Equation and SETI</u> Recent discoveries of extra-solar planets. Theories of the formation of our solar system	19
Apr 25	<u>TBA</u> **StarryNight Activity Due**	TBA

Important Notes

- Last day to enter a course without permission and to withdraw receiving tuition refund is January 20, 2006.
- Last day to voluntarily withdraw from courses or change to audit without academic penalty is March 10, 2006.
- It is the responsibility of all students to become familiar with and adhere to NUC Academic Policies, such as the policy on Academic Dishonesty, which are stated in the current catalogue.
- Class will be held the evening of March 7 (no classes during the day).