

Instructors: Lancelot Kao (PI)
Orkan M. Umurhan (Co-I)
Office: Science 400
Phone: 415-239-3654
E-mail: astrkao@ccsf.edu
Homepage: <http://fog.ccsf.edu/~lkao/>

CRN# 74077 Section: 501 7:00 -10:00 PM Science 311
FINAL Exam: Wednesday December 15, 2010 7:00 - 9:00 PM

Office Hours: Wednesday 5:30 - 6:30 PM Science 400
By Appointment Science 400

Exam Dates: Wednesday September 22, 2010 1st Exam (In-class)
Wednesday November 10, 2010 2nd Exam (In-class)

Course Description:

Lec-3

The **origin** and **evolution** of the universe, galaxies, stars, planets, and life. Students will learn about stellar properties and evolution, coupled with the study of the origin and evolution of planets, life, and intelligence to estimate the possibilities of intelligence elsewhere in our galaxy. Problems of communication with extraterrestrial civilizations. Conceptual understanding of the universe.

CSU/UC

Required Textbook:

Duncan & Tyler YOUR COSMIC CONTEXT: An Introduction to Modern Cosmology. Pearson

Recommended Reference Textbook:

Freedman & Kaufmann. UNIVERSE: Stars & Galaxies, 3rd Edition. W.H. Freeman & Co.

Attendance:

You are allowed **four** absences during the semester. If you miss **more than six** lecture-hours (or total of six hours of instruction) **and** you do not inform me, I may elect to **withdraw** your enrollment if the absences occur before midterm exam; afterward, this will result in a grade adjustment. The attendance policy is effective in the 3rd week of instruction (**September 1, 2010** onwards). Furthermore, if you arrive late or leave the lecture early by more than 10 minutes (**ALE**), I will count as **one hour of absence**. In addition, if you are **consistently late** or leave the lecture early by more than 5 minutes, I may elect to **withdraw** your enrollment. Otherwise, it is **your responsibility** to drop the course if you decide the course is not suitable for you, and the last day for student/instructor initiated withdrawal is **November 18, 2010**.

Tentative Schedule:

Week #	Content	Assignment & Exam	YOUR COSMIC CONTEXT	Universe's Chapter
1	Introduction		1	1, 2
2	What Do We See?		2	3
3	Properties of Matter, Energy & Light		2.4, 3.1	5
4	Distance Measurements & The Scale of the Universe		2.5, 3.2, & 3.3	5, 17.1, 17.2, 17.3, & 24.4
5	Motion and Gravity		4	4, 24.8
6	Telescopes	Exam #1		6
7	Back to the Stars I		9	17, 18, 19
8	Back to the Stars II		9	18, 19
9	Back to the Stars III		9	19, 20
10	Current State of the Universe I		5	24
11	Current State of the Universe II		5	26
12	The Fabric of Spacetime		6	23, 26.6
13	Cosmic Expansion	Exam #2	7	26.2, 26.7
14	Cosmic Microwave Background		8	26.4, 26.5
15	The Big Bang Theory & Early Universe		10, 11	26, 27
16	From Galaxies to Superclusters		12	24, 25
17	Our Origin		13	16, 23
18	FINAL Exam Week			

Grade:

The course grade will be weighted as follows:

Homework Assignments	20%	200 points
Quizzes, In-class Activities	20%	200 points
In-class exams (2)	30%	300 points
Final exam (1)	30%	300 points

The instructional methodology in this class emphasizes a problem-solving approach to astronomy and astrophysics. There are homework assignments, quizzes, and in-class activities for this course. There will be NO MAKE-UP quizzes and in-class activities for the course! The exams are multiple-choice question and/or short question exams. If you miss the in-class exam due to unforeseen circumstances (illness, jury duty, etc.), you **must** contact me to schedule a make-up exam within one week -- otherwise, the score for that exam will be zero. You **must** take the final exam as scheduled.

The assignment of grades is as follows:

A	90% or higher
B	between 75 - 89%
C	between 60 - 74%
D	between 45 - 59%
F	below 45%

The Honor System:

We function on the honor system. This means that you are on your honor to hand in work that is your own. This does not mean that we discourage studying and learning with fellow students -- quite the contrary! What we do frown upon is such things as copying your friend's homework just before class ... and just plain cheating.

Ten Study Tips for the Course:

If this is your first college science class, the following study tips may help you navigate through the class.

1. Examine your study habits. Your current study habits may be very effective in your non-science classes; however, it may not be effective to apply them to the sciences. When you start to learn a particular scientific discipline (e.g., astronomy), it is like learning a foreign language. You need to learn the grammar, vocabularies, and syntax of that language. Then you will need to practice it. Likewise, in astronomy you need to learn the grammatical structure (analytical reasoning), vocabulary (astronomical definitions and jargon), and syntax (physical laws and mathematical operations). Do you remember how you first learned to speak and write English? (This applies to both native English speakers and ESL students alike.)
2. Examine your textbook carefully. If you know how the textbook is organized, you are more likely to use it efficiently. The introductory pages of the textbook will give you a guided tour.
3. When you read the text, you should pay attention to the figures, diagrams, and tables. These commonly contain crucial information, and may illustrate concepts and applications better than the text.
4. Prepare an outline of the text before attending the lecture. This will help you to organize your thoughts and questions, so you can ask me for clarifications.
5. Quiz yourself after reading the text. You can use the review questions and problems at the end of each chapter to test your understanding of the subject.
6. During lectures you should take notes, ask questions (whenever you are lost), and volunteer to answer questions that come up during class.
7. After each lecture, compare your class notes to the textbook before the next lecture. When your memory is fresh, it is easier to access what you have learned. You may also find out what you may have missed, or what is still confusing you.
8. Whenever you receive a homework assignment, start working on it as soon as possible. It is very difficult to finish a homework assignment at the last minute. Remember that 20% of your course grade is based on homework assignments!
9. Form a study group. You can learn from your classmates, and they can learn from you.
10. Whenever you have trouble with the material, let me know immediately. I am here to help.

Resources for the Course:

A few good magazines that will provide good supplemental reading for this course are *Astronomy*, *Sky & Telescope*, *Discover*, *Science News*, and *Scientific American*. You can get them at newsstands, bookstores, local libraries., or the Rosenberg Library at the Phelan campus.

You can also find a wealth of information about astronomy on the Internet, through the World Wide Web. The Academic Computer Laboratory (ACL) on the second floor of Rosenberg provides access to the Internet, and to academic computer software.

If you have never used the Web before, it is time to learn about this wonderful resource.

Extra Credit Policy:

Extra credit activities are offered for your enrichment. Participation in these activities is strictly voluntary. You can earn a maximum of 50 extra credit points (roughly 5% of your final course grade) **IF AND ONLY IF** you turned in **ALL** homework assignments. You can turn in all your extra credits at the **FINAL Exam**. If you would like to earn extra credit, there are at least four different ways.

Public Lecture in Astronomy: You must write a summary report after attending a public lecture. The report must include the date, the name of the speaker(s), location, and name of the event. The following is a list of recommended public lecture series in astronomy:

- Distinguished Lecturer Series at Chabot Space & Science Center. Call (510) 336-7373 for information.
- Silicon Valley Astronomy Lecture Series at Foothill College. Call (650) 949-7888 for information.
- Dean Lecture Series at Morrison Planetarium: Call (415) 750-7141 for information.
- CCSF Astronomy Department Lecture Series

In addition, the *San Francisco Amateur Astronomers* maintain additional listings of public lectures in astronomy throughout the Bay Area. For information, visit their website at www.sfaa-astronomy.org. [10 points per report]

Science Museums: You must show proof that you visited any science museums, centers, planetaria, or observatories. You can find a listings at http://fog.ccsf.edu/~lkao/Astro_Links/astro_links.html . [5 point per visit, maximum 15 points]

Special Project: You can earn **50** extra credit points by doing a special project. I can assign you a specific project, or you can propose your own. You may be required to work with a service-learning coach or a student mentor to complete the project. Student mentor information can be found at the First Light webpage, www.ccsf.edu/flight/. [**50 points**]

Accommodation, etc:

If you need course adaptations or accommodations because of a disability, if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible.