

# ASTRONOMY 309R – SPRING 2007

## GALAXIES, QUASARS, AND THE UNIVERSE

Unique No. 48960

Course Web Page:

[http://www.as.utexas.edu/astrophysics/education/spring07/komatsu/komatsu\\_309r.html](http://www.as.utexas.edu/astrophysics/education/spring07/komatsu/komatsu_309r.html)

### **Instructor**

Dr. Eiichiro Komatsu

Office: RLM 16.210

Hours: M 10-11, W 4-5; Other times by appointment

Phone: 471-1483

Email: [komatsu@astro.as.utexas.edu](mailto:komatsu@astro.as.utexas.edu)

### **Teaching Assistant**

Masa Shoji

Office: RLM 15.202A

Hours: TTh 2:30-3:30; Other times by appointment

Phone: 232-3958

Email: [mshoji@astro.as.utexas.edu](mailto:mshoji@astro.as.utexas.edu)

## **COURSE OBJECTIVES**

This course provides an overview of modern cosmology. The lectures will cover the expansion of the universe, redshifts, the center and edge of the universe (are there any?), cosmic horizons, scientific models of the universe, cosmic microwave background, neutrinos, origin of elements in the universe, the early universe, cosmic inflation, as well as dark matter and energy. The lectures in April will introduce to you Einstein's special and general theory of relativity and their application to black holes.

### **PREREQUISITES**

AST301, 302, or 303, or an equivalent descriptive introduction to astronomy of one semester or more.

### **TEXTBOOK**

*COSMOLOGY, 2<sup>ND</sup> EDITION*

Author: Edward Harrison

Cambridge University Press

## **CLASS**

- Class meets at WEL 3.502 on MWF 9-10.

## **EXAMS**

- **There will be 8 in-class exams**, all of which consist of 10 multiple-choice questions. (See the course schedule for the dates of exams.) The penalty for cheating on an exam is a score of zero for the exam, and the zero will be included to calculate the final grade.
- There will be make-up examinations ONLY for students with valid excuses. **Reasons for absence must be presented in advance of examination.** No make-up exams will be arranged for those who did not notify the lecturer about their absence in advance.

## GRADING

- The course grade will be evaluated on the basis of exams, attendance and class participation. The lowest exam score will be dropped, and the remaining 7 exams will be counted towards the grade. **The exam contributes to 2/3** of the final grade, and **class attendance contributes to 1/3** of the final grade. Class participation is counted as extra credits.
- The following grading scale will be used: **85+=A; 75-84=B; 65-74=C; 55-64=D.** Any average below 55 is failing.

## CLASS ATTENDANCE

- I will check your attendance by asking you to sign in a class-attendance sheet at every class. The class attendance will be counted towards the final grade, as described above. Notice that a large weight (1/3 of the final grade) is given to the class attendance – if you miss one class it can damage your grade more than you might think!
- Please sit on the front seats – do not sit in the back! I will often use chalkboard, and the lecture room is too large for you to read what I write on the chalkboard if you sit far in the back. Also, please let me know if you cannot read things on the chalkboard.

## CLASS PARTICIPATION

- Feel free to ask questions during or after lecture. Sometimes I do not notice that you are raising your hand, so please call my name when I do not seem to recognize you.
- Class participation – such as asking questions, answering questions from the lecturer or fellow students, and participating in in-class activities – will be counted as extra credits.
- I intend to make lectures as interactive as possible. I am in class not only to teach you the materials covered in lectures, but also answer your questions and make

sure that you understand what is being taught. Please participate in class actively. It will benefit all of us.

### **BASIC MANNERS IN CLASS**

- Please do not leave the class room until lecture ends unless you have valid excuses. Let the lecturer or TA know **before** class begins if you have to leave the class room early.
- Do not read any newspapers or magazines.
- Do not read any books that are unrelated to the course.
- You may use your laptop to take notes, but don't use it for computer games, internet, emails, chat, or any other unrelated things during the lecture.
- If any of these bad behaviors are identified from you during the lecture, your grade will be penalized. We are watching you!!