

Monday and Wednesday

9:30 AM – 12:30 PM

Instructor: Prof. Andre Adler

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Office Hours: Friday from 10:00 to 11:00 am or by appointment.

Lab Section	Day	Time
2	TR	9:30 – 11:30 AM
3	TR	11:45 AM – 1:45 PM

Course Description

Modern science has provided us with some understanding of age-old fundamental questions, while at the same time opening up many new areas of investigation. How old is the Universe? How did galaxies, stars, and planets form? What are the fundamental constituents of matter and how do they combine to form the contents of the Universe? The course will cover measurements and chains of scientific reasoning that have allowed us to reconstruct the Big Bang by measuring little wisps of light reaching the Earth, to learn about sub-atomic particles by use of many-mile long machines, and to combine the two to understand the Universe as a whole from the sub-atomic particles of which it is composed.

Course texts

1. *Cosmology*, by Edward Harrison, 2nd edition, Cambridge University Press.
2. *Cosmos and Quarks Laboratory Experiment Descriptions*, 2007. These are found on Blackboard.

Course Examinations

The examinations will be multiple-choice and based on the (1) lectures, (2) readings and (3) in-class assignments.

You will need to bring a calculator to both exams. The final exam will be cumulative with a design to test you on concepts from the mid-term exam that the most students had trouble with.

Examination Schedule and Course Grade

Midterm examination, Wednesday June 4:	30%
Laboratory:	30%
Final examination, Wednesday June 25:	40%

Laboratory Sessions

These weekly sessions are an important part of the course. You must be registered for one lab section. You will have to submit a lab report for each experiment performed. The lab report has to include answers to all questions and any data you may have collected. The lab instructor will announce if the lab report is due the same day or the following meeting of the lab. **The laboratory sessions will be held in Meyer 103 and will begin Tuesday, May 20.**

You are responsible for printing out the laboratory assignment description from Blackboard and bringing it to the lab. Each lab period will begin with a quiz based on the laboratory assignment description.

Lab is worth 30% of the total course grade. This will be partitioned between the lab report and the lab

quiz as follows: the lab quiz is worth 5% and the lab report is worth 95% of the total lab grade.

Attendance The lab instructor will deduct points from your lab grade for arriving late or leaving early.

Absence Policy Excused absences will only be given in the case of illness (with a doctor's note) or observation of a religious holiday. You must notify your lab instructor in advance in writing if you miss a lab due to religious reasons. All other absences will be considered unexcused and will result in a lab grade of zero. **You cannot make up a lab by attending a laboratory session that you are not registered for.**

Late Assignments Late assignments will be penalized by an amount specified by your lab instructor. If you wish to submit a late lab report you must do so only at your laboratory instructor's office.

Lab Instructors Each lab instructor will hold a weekly office hour where you can discuss lecture and laboratory material. Office locations and office hour schedule will be announced in lab.

Name	Email Address
Rakib Rahman	mrr290@nyu.edu

Missed Exams

There are no make-up exams for students who miss the mid-term exam. If you miss an exam because of illness, you must contact Dr. Adler by phone or email **before** the start of the exam and follow up with a doctor's note. If you miss an examination, for a valid reason (illness, injury or family emergency), your grade will be based on the following allocations:

Laboratory: 30%
Final examination: 70%

Final Exam A make-up for the final examination will be given under exceptional circumstances, which must be discussed with Dr. Adler before the examination. A doctor's note must be provided in the case of illness. In this case a grade of incomplete will be assigned and the make-up will be scheduled for the beginning of the Fall 2008 semester. Please avoid making travel plans before the date of the final exam.

Religious Holidays If you will be absent for a religious holiday during the semester, you must inform your lab instructor and Dr. Adler in advance.

Class Web Site

A Blackboard web site for this class exists and is accessible through your *NYUHome* account or by going to <http://classes.nyu.edu> and logging on using your netID and the same password as that of your NYU email account. You must have an active NYU email account to access the site.

You will download the descriptions of the laboratory experiments from Blackboard.

Harrison Readings

The chapters and sections we will cover in lecture are listed below. The section titles referred to below are in boldface type in the textbook.

Each chapter ends with a section entitled “Reflections” where important mathematical topics are to be found. You will only be responsible for those ones announced in class.

Chapter 3: Cartesian and Newtonian World Systems
“Decline of Aristotelian Science”, “The Newtonian World System”.

Chapter 4: Cosmology after Newton and Before Einstein
“Cosmical Islands”, “The New Astronomy”, “The Age Problem”.

Chapter 5: Stars
All sections.

Chapter 6: Galaxies
All sections.

Chapter 7: Location and the Cosmic Center
All sections.

Chapter 12: General Relativity
All sections except for “Mach’s Principle”.

Chapter 14: Expansion of the Universe
All sections

Chapter 15: Redshifts
All sections

Chapter 16: Newtonian Cosmology
All sections

Chapter 19: Observational Cosmology
All sections except for “Large-Distance Observations” and “Is the Universe Open or Closed?”.

Chapter 20: The Early Universe
All sections