

ASTR 1120 General Astronomy: Stars & Galaxies

Spring 2005

Prof. Juri Toomre TA: Ben Brown

MWF 10am, Duane G1B20

Lecture 1 10 Jan 05

Detailed course syllabus now being passed out
zeus.colorado.edu/astr1120-toomre

Outline of Today's Class

- *Course goals*
- *Course overview*
- *Course information*

- Introduction:
Sizes and Scales



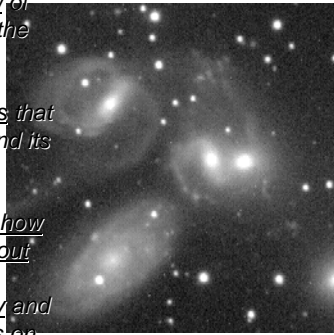
Course Goals

Develop a broad view of what we know about the universe

Understand the forces that shape the universe and its history

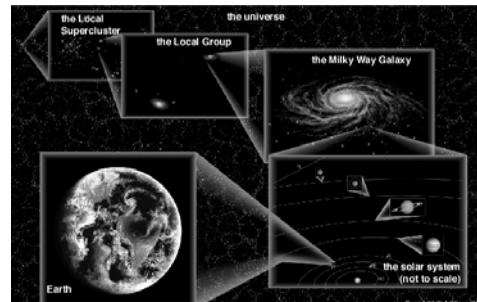
Help you understand how we can figure all this out

Appreciate the beauty and richness of what goes on



Course Overview: What we shall study

- Vast range of **SIZES and SCALES**: finding our way through the universe

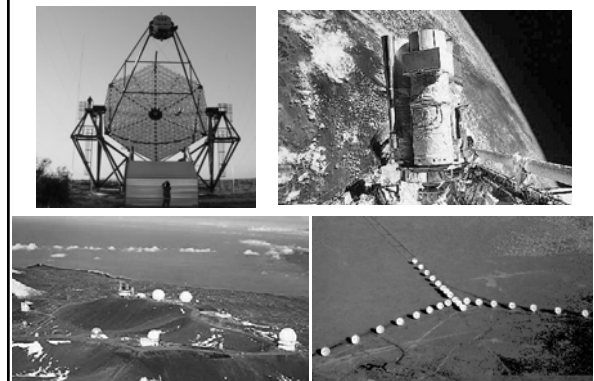


Light (Electromagnetic Radiation)

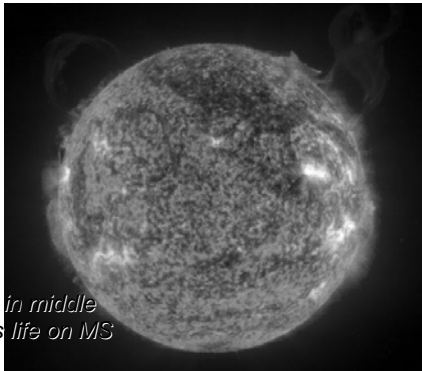
- What is light?
- How do we use it to find out what and where things are?
- Waves vs particles



Telescopes (Tools of the Trade)



Our Nearest Star : The Sun



*Star in middle
of its life on MS*

STARS of
very many
sizes and
colors

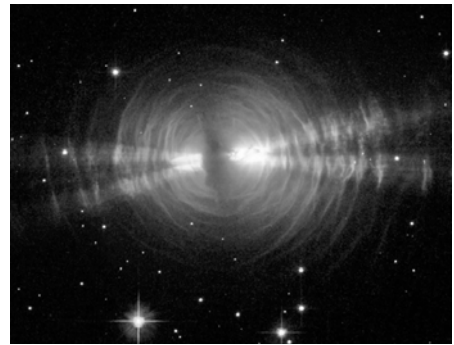


*Evolution path and
color / brightness depends
sensitively on MASS*

STELLAR Birth and Life



*STAR DEATH : white dwarfs,
neutron stars and black holes*



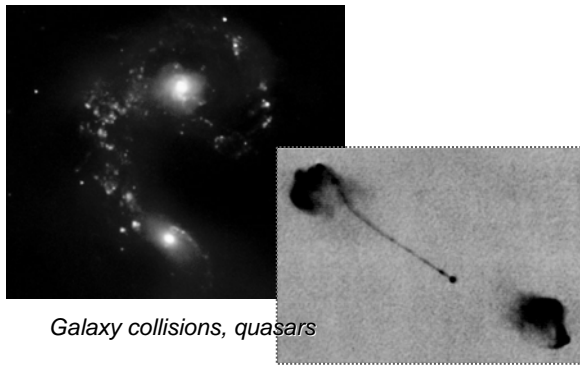
OUR GALAXY : The Milky Way



Exploring a Universe of GALAXIES



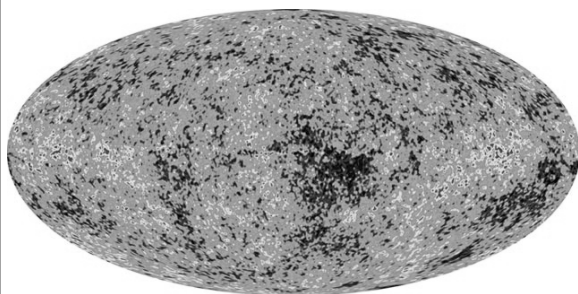
GALACTIC evolution



Dark matter, dark energy and fate of universe

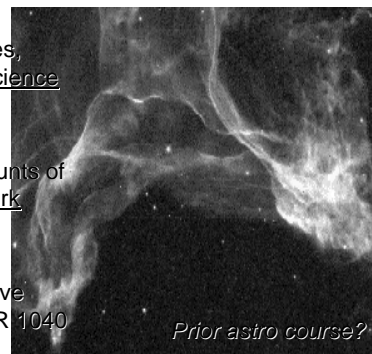


BIG BANG beginning



Who should take this course?

- No prerequisites, aimed at nonscience majors
- No lab credit
- Moderate amounts of quantitative work (algebra)
- More quantitative course – ASTR 1040

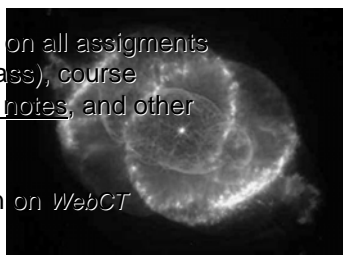


Course Information

COURSE WEB PAGE:
zeus.colorado.edu/astr1120-toomre

You can find info on all assignments (passed out in class), course calendar, lecture notes, and other links

Grading is shown on *WebCT*



Required Text

The Cosmic Perspective
by Bennett et al., 2003, 3rd ed

Includes:
Access to textbook website
www.astronomyplace.com,
SkyGazer planetarium software, and tutoring center

You will need your own 'astronomyplace' account! Most homeworks require it



Clickers

- Required -- bring to each class!
- Register clicker to your name using instructions on syllabus (link on our website)
- Used for reading quizzes, in-class discussion questions, feedback
- \$25 purchase refund coupon with new books



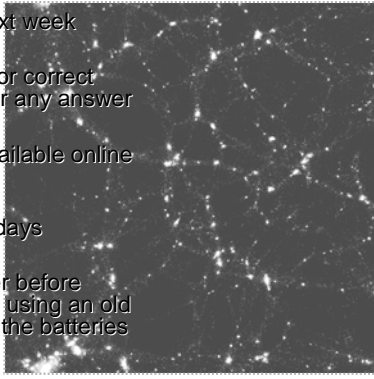
Read all course information in your handout after class!

- Three in-class mid-term exams (m/c and short essay): 45%
- Homework assignments (drop lowest): 20%
- Final exam: 25%
- Clickers: 10% (drop 5 lowest scored days)
- Extra-credit observatory nights (max 2)

There are no make-up exams or late turn-ins

More on clickers

- Credit starts next week
- Graded 100% for correct answer, 50% for any answer
- Your grades available online weekly (*WebCT*)
- 5 "free clicker" days
- Buy and register before Friday! If you're using an old clicker, change the batteries NOW!

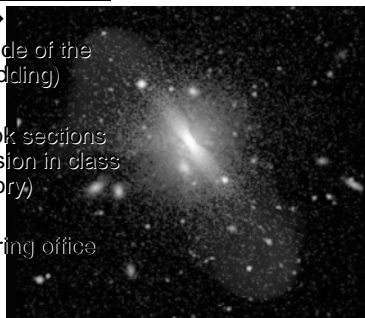


Important classroom policies

- Working together on homework is encouraged, BUT:
- Your answers must be in your own words -- exact copies will be awarded split credit
- Note sources and whom you worked with on homeworks
- Using another person's clicker is cheating
- *Students are expected to follow the CU Honor Code and behave with courtesy to the instructors and their classmates*

How to succeed in this course

- GOT TO PUT IN THE TIME:
3 credits at CU →
6 to 9 hours outside of the classroom (no kidding)
- Read the textbook sections BEFORE discussion in class (secrets of memory)
- Come see us during office hours!

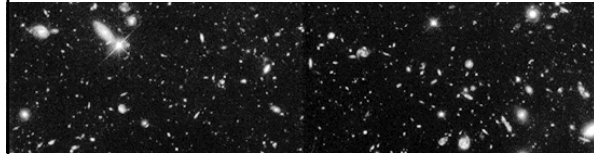


Come talk with us

- Juri Toomre's office hours: Mon, Wed after class 11:15a-noon; Thur 2:00-3:45pm in JILA Tower A-606 (phone: 303-492-7874) jtoomre@solarz.colorado.edu
- Ben Brown's office hours: Wed 1:00-3:00pm; Thur noon-2:00pm, in TA office, Duane E-122 (phone: 303-492-7851 or -5010) bbpbrown@colorado.edu
- Or call or email us to make an appointment!



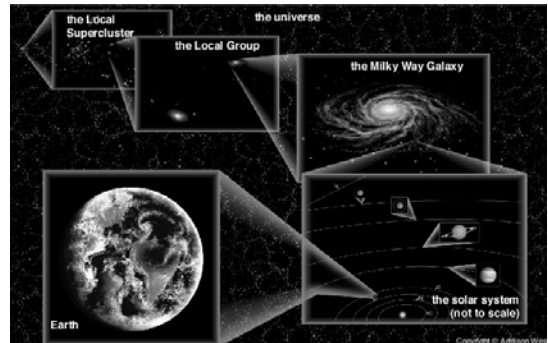
Navigating the Universe: Sizes and Scales



"I don't pretend to understand the Universe. It's a great deal bigger than I am"

- Thomas Carlyle (1795-1881)

Sizes and Scales in the Universe



For next class meeting, read:

How to Succeed in this course, p. xxvi

- Chapter 1, all (*Our Place in Universe*)
- Review *Basic Astronomical* terms, p. 4
- Chapter 2, review all (*Motion of Stars, Seasons*)
- Chap 3, sec 3.5 (*Nature of Science*)
- First read all of Chap 4 (*Matter and Energy*)
- Begin reading Chap 6 (*Light*)

- You can get a copy of these slides after class from course website (can be helpful)