Cosmic Catastrophes

The Lives and Deaths of Stars

AST 309N

- Handouts
- Syllabus/Schedule
- Webpage: http://www.as.utexas.edu/astronomy/education/spring09/wheeler/309n.html (not blackboard)
- Book: Cosmic Catastrophes (second edition)
- Four exams
- Grading (90-100 A, 80-89 B, 70-79 C, etc (do not drop lowest exam -- but extra credit!)
- Review Sessions - Wednesday, 5 - 6 PM

- Schedule - brief background then start with Chapter 5
- Leave room for Chapters 13 and 14 and extra stuff

Reading: Chapters 1 thru 4 for background plus Chapter 5 - White Dwarfs

Chapters 1 & 2 - AST 301

- Particles, forces, neutrinos
- Charge repulsion
- Pressure -
  - Thermal
  - Quantum
- Nuclear Reactions

Chapters 3 & 4

- Binary Star Evolution
- Accretion Disks

Will refer to as needed

Extra Credit

On exams (1 or 2 points):

Astronomy in the News,
NASA's Astronomy picture of the day
http://antwrp.gsfc.nasa.gov/apod/astropix.html

Sky Watch Project - details on web site. Log of observations: up to 5 points on term average (equivalent to 20 points on a single exam!). Due on Monday after each hourly exam.

Keep an eye on Betelgeuse in Orion, also locate Sirius A, the Crab Nebula, Cassiopeiae A, Cygnus X-1, Sagittarius A, others. Record enough information so that I can tell you actually went out at night and tried to see something. Give a brief summary of why they are important. Some of these can be seen with the naked eye, some not. Some can be seen now, some later in the term.

One minute exams

Peer interaction

Thursday Class

Wheeler on travel - site review at Stanford, Department of Energy program on computational astrophysics of supernovae.

Brief review of sky watch extra credit procedures by Manos.

Show video of Discovery Channel Universe series "Supernovas." Bits with Wheeler, ex-Texas student Robert Quimby (now at Caltech), lots of topics to be covered in this class.

The Universe is a strange place!

It began in a Big Bang, the creation of space and time as we know them,

It has been expanding for 14 billion years,

It is full of dark matter, unlike protons, neutrons, electrons, our stuff, that nevertheless gravitates.

It currently seems to be accelerating in the grip of some anti-gravitating “dark energy.”

On the microscopic scale, which can determine the cosmological scale, nature follows the laws of quantum theory, probability not certainty, quantum jumps, wave-like properties of particles.

Study the stars - see where that leads…