Astro 210

Lecture 1

Aug 23, 2010

Announcements:

- Welcome!
- take a, seat and a syllabus
- fire up your iClickers if you brought them

  ...don't panic: not required till Friday

Today's Agenda

1. Introductions
2. Overview and Appetizer:

   Preview! No need to take notes today!
3. Course Mechanics

Introductions

Getting to know us

`www: A201 Staff`

Getting to know you

Getting to Know You: iClicker Poll

What's your gut feeling: *is Pluto a planet*?

(a) No way! Good riddance!
And I've got my eye on you, Neptune!

(b) Umm, probably not?

(c) Umm, probably so?

(d) Yes way! Pluto was robbed! Long live Pluto!

All answers receive credit: everyone's a winner!

We'll soon see what all the fuss is about...

Welcome!

This course sweeping in scale
science applied to the biggest picture–most sweeping course you can take this side of Green street.

Note: you are (at great expense)
attending the **Univers**ity of Illinois
you have been promised the Universe...
$\longrightarrow$ it's right there in the name!

In this course, **we deliver!**

Huge range of scales in space and time

in space:

subatomic 10^{-33} cm, to the solar system 10^{10} km across

to Milky Way 100,000 light-years across,

to edge of observable universe 10's of billions of light years,

to unobservable universe beyond

also sweeping in time:

10^{-43} sec after big bang

to billions of years in future of cosmos

Taking Astr 210 Here and Now: A Wise Choice

Great **time** to take the course:
Golden Age in study of the cosmos
new results flooding in–some during this semester

> We are very lucky to live in an age in which we are still making discoveries. It is like the discovery of America–you only discover it once.
>
> – Richard Feynman, *The Character of Physical Law*

Also great **place** to take this course:
Illinois national and world player in astronomy and astrophysics
both theoretical and observational
$\Rightarrow$ getting it from the horse's mouth–so to speak

Appetizer: Course Goals

The Big Picture

My goal in this course:
get a familiarity with the big picture

- partly phenomenology–*what* we know: "just the facts"
- but also: *how* and *why* things are as we see them
  Will apply physical principles: "get under the hood"

A brief, whirlwind tour
preview of coming attractions
→ don't need to take notes...

iClicker Poll: Black Holes

From a safe distance, you drop an object (nuclear waste? Voldemort?) on an isolated black hole.

Will you see it fall in?

(a) yes, no matter your distance from the hole

(b) maybe, depends on how far you are from the hole

(c) no, because it never actually falls in

(d) no, although it does actually fall in

Business

Syllabus

will highlight main points here...

you should read the whole thing carefully

Note: this course will rely heavily on the Web.

course page is source for all course information and assignments

Prerequisites:

Credit in Phys 211–i.e., mechanics

Credit in Calculus

Physics 212 very helpful, especially for physics of light & waves

- not required **if** you are willing to pick these up on your own from my class notes, textbook, etc.