Astronomy 596/496 APA
Lecture 1
Aug. 27, 2015

Announcements:

- Welcome!
- Pick up Syllabus
- Homework 1 due at start of class next time, Sept. 3

Today's Agenda

- ⋆ Colloquium Recap
- ⋆ Astro-Careers: Wordline
- ⋆ Order of Magnitude
- ⋆ Colloquium Preview

NSF Graduate Research Fellowship

Due: Oct 30

Eligibility:

- U.S. citizens, nationals, or permanent residents
- undergrad senior, 1st and 2nd year graduate students

Q: why bother?

Q: isn't it a waste of time if I don't get the money?

Need to request letters now!

Colloquium Review

Q: What is a colloquium?

Q: Why is a colloquium–what's the point?

Q: Who gives colloquiua? How are they chosen?

Q: Who is the intended audience?

Q: What is challenging about giving a colloquium?

Q: What can you do to prepare to give an awesome colloquium?

this past Tuesday: Eric Morganson
"Mapping the Outer Milky Way with Optical Surveys:
Is there a Giant Donut Around Our Galaxy?"

Q: What was the talk about?

Q: Key/memorable results?

Q: What did you like about the presentation?

Q: Lingering questions?

Q: Other comments?

Careers: Worldlines

Start: Here and now

Finish: Retirement

Q: Grad school milestones?

Q: Branching points?

World Line Events

Sample list–not complete or unique:

Grad School

- choose grad school
- take classes
- find advisor
- do first research project
- write papers
- give posters, then talks
- take prelim
- write observing/computer time/fellowship proposal
- write thesis
- defend thesis

Path After PhD

Postdoc

then paths diverge

- academia: diverge further along teaching↔research spectrum
  first student, tenure, promotion to Full, awards, fame...
- observatory
- national lab
- planetarium
- industry
- finance
- nonprofit

Order of Magnitude: Milky Way Black Holes

0. Guess the number N_{bh} of black holes in our Galaxy

1. Think of at least two ways to estimate N_{bh}

2. Estimate the distance to the nearest black hole

3. Bonus: Is there more mass in Sgr A* or the other black holes?

Colloquium Preview

Next week, Sept. 10

- Kathrin Heitmann, Argonne National Lab and KICP
- "Secrets of the Dark Universe"

Computational cosmology in the Great Survey era

Q: cosmic ingredients–how much of the U is dark?

Q: what is known about the dark sector?

Q: how do we treat these components in simulations?

Simulating the Universe:
Q: at what cosmic epoch do sims usually start?
Q: what are useful "figures of merit" for sims?
Q: why are bigger sims better (all else being equal)?