Today

- Discuss syllabus
  - Papers
  - Grad student papers and presentations
  - Quizzes
  - Readings
- What I did last week…
- Review Tree of Life
  “The species concept for prokaryotes”

16S rRNA (SSU rRNA)

50S
23S & 5S
30S
16S

WHY is this a useful molecule?

The universal tree of life

Are deep branches ancient?
**The Bacteria**

- Cyanobacteria - oxygenic phototrophs

**Cyanobacteria**

- THERMUS
  - Taq polymerase,
  - heterotrophs, aerobes,
  - often pigmented

**Deinococcus/Thermus**
Other thermophiles

• *Thermotoga toga*, heterotrophic thermophile

The Archaea

- Sulfur reduction
- Sulfur respiration
- Sulfur oxidation
- *Thermoproteus*
- *Sulfolobus*
- COLD Crenarchaea

Crenarchaea

- Sulfur reduction
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Thurs

- We’ll overview the Archaea
- Methods in Microbial Ecology
- Readings:
  - Brock/ Madigan “Biology of Microorganisms”
  - Current Opinion in Microbiology 6:1-8
  - Question: what is a microbial species???