

Earth 210 – Stars Planets and Astrobiology

Location: D236 EMS
Time: MWF 12:30-1:40

Instructor: Greg Laughlin
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Office Hours: MW 1:40-3:00PM (or by appointment)

Text: Class Notes + Articles from the literature

Requirements: 4 homework sets + 5-page paper on a relevant topic + a final quiz

List of topics (approximately one lecture per topic)

1. Big Picture Cosmology
2. Astrophysical Gas Dynamics
3. First Stars and Galaxy Formation
4. Galactic Dynamics and Structure
5. Star Formation
6. How Stars Work – Stellar Structure
7. Stellar Evolution
8. Nucleosynthesis
9. Gas Dynamical Processes in Planet Formation
10. Particle Dynamical Processes in Planet Formation
11. Orbital Dynamics
12. Detection Methods for Extrasolar Planets
13. Detection Methods for Extrasolar Terrestrial Planets
14. Giant Planet Interiors
15. Giant Planet Atmospheres
16. Terrestrial Planet Interiors
17. Terrestrial Planet Atmospheres – habitability
18. Mars and Venus
19. The Molecular Basis for Life
20. The Genome
21. Evolutionary Biology
22. Computation
23. Game Theory
24. Markets
25. Trends, SETI, and the Future.