

ASTR 405

Planetary Systems

Final Words

Fall 2025

Prof. Jiayin Dong

Final Announcements

- **Final Project due on 12/17**
 - Submit your report before 12/10 to receive an early evaluation
- **M, W lectures will be covered by Spencer as Q&A sessions for your final project**
 - No office hours next week
 - I will be at a conference next week but I will try my best to respond to your emails
- **Class participation grade**

Grading

Component	Weight	Description
Problem Sets	40%	Nine assignments; lowest grade dropped (5% each)
Midterm Exams	30%	Three exams (10% each) following each module
Mini-Project	20%	Written report
Class Participation	10%	Regular attendance and engagement

Grading Scale

A+: 97–100%

A: 93–96%

A-: 90–92%

B+: 87–89%

B: 83–86%

B-: 80–82%

C+: 77–79%

C: 73–76%

C-: 70–72%

D+: 67–69%

D: 63–66%

D-: 60–62%

F: Below 60%

What you have learned

- Part I: Exoplanet Detection Methods
 - Explore the techniques astronomers use to discover planets beyond our solar system
- Part II: Exoplanet Demographics and Planet Formation
 - Investigate the statistical properties of exoplanets and theories of how planetary systems form
- Part III: Exoplanet Atmospheres, Interiors, and Characterization
 - Examine methods for studying the physical properties and compositions of distant worlds

What you have learned

- Exoplanet science moves fast, and you learned to navigate real research ideas: how we detect planets, how we model them, and how we interpret the data.
- You practiced how to think like scientists: doing order of magnitude estimates, checking units, testing your code, and communicating results with clarity and honesty.

I hope you leave this course with three things. You will not remember most details of the course in a few years (or months, even weeks), and that is okay.

- A stronger intuition for the physics behind exoplanets – always ask what the dominant physical process is.
- Critical thinking when you see an exoplanet press release – question how the data was obtained, consider observational biases, and ask whether the result is truly significant.
- A sense that you are part of a growing field with room for your own contributions.

What I have learned

- **I appreciate your curiosity.** It motivated me to try my best to put everything I know and everything I find interesting into this course.
- **I appreciate your hard work.** This course is not meant to be easy. You have done more, and done better, than I had at your career stage. I hope this course has opened more options and possibilities for your future, whether as a scientist, engineer, science communicator, or something completely different.
- **I appreciate your resilience.** Not every homework problem, in-class activity, or exam question was easy. I respect the effort you put into keeping up with the pace of the course. I also appreciate that you continued to show up consistently in the last third of the semester when you were all busy and stressed with other courses and commitments.
- **I appreciate your feedback.** The survey after Midterm 2 helped me understand what you liked and disliked about the course and make adjustments. I would also appreciate your final evaluation. You should have received a link from **FLEX**.