Introduction to Astrophysics and Cosmology

Course requirements

Helga Dénes 2025 S1 Yachay Tech

hdenes@yachaytech.edu.ec

Classes

- Monday 3:00 PM - 4:59 PM, YachayTech Urcuqui/CABALLERIZAS/C-101
- Tuesday 1:00 PM - 2:59 PM, YachayTech Urcuqui/INGENIO AZUCARERO/AI-102
- Thursday 11:00 AM - 12:59 PM, YachayTech Urcuqui/INGENIO AZUCARERO/AI-102

Attendance is not mandatory and it will not affect the grades.

If you decide that you do not want to take the class after all, make sure to unregister from the class. Otherwise the class will be failed.

Syllabus

Topics:

- Introduction to astrophysics
- Radiative transfer
- Stellar astrophysics
- Interstellar medium
- Star formation and planet formation
- Extragalactic astronomy
- The spacetime dynamics of the Universe
- The thermal history of the Universe

Evaluation

- Quizzes **20% of the grade (approximately 4 Quizzes)**
- Homework/Lab **20% of the grade**
- Midterm exam 30**% of the grade**
- Final exam 30**% of the grade**

Exams, Quizzes and Homework will be announced in advance in class and via email.

Academic integrity is very important.

Cheating in exams or quizzes will have a penalty of a score 0 for the full exam or quiz.

Using Chat GPT or other generative AI software for homework is not allowed, and will result in a 0 score if used.

Please cite all resources for the are used for the homework.

Recommended reading

I am going to use material from this book for the class:

Arnab Rai Choudhuri: Astrophysics for physicists

All the slides are going to be available online via GitHub: https://github.com/helgadenes/Astrophysics_yachay

Slides will also be available on Moodle

There are also many other good books on the topic and plenty of online resources.

Please feel free to contact me in person or trough email if you have questions about the class.

My email: hdenes@yachaytech.edu.ec

Class representative?

What objects are these?

What objects are these?

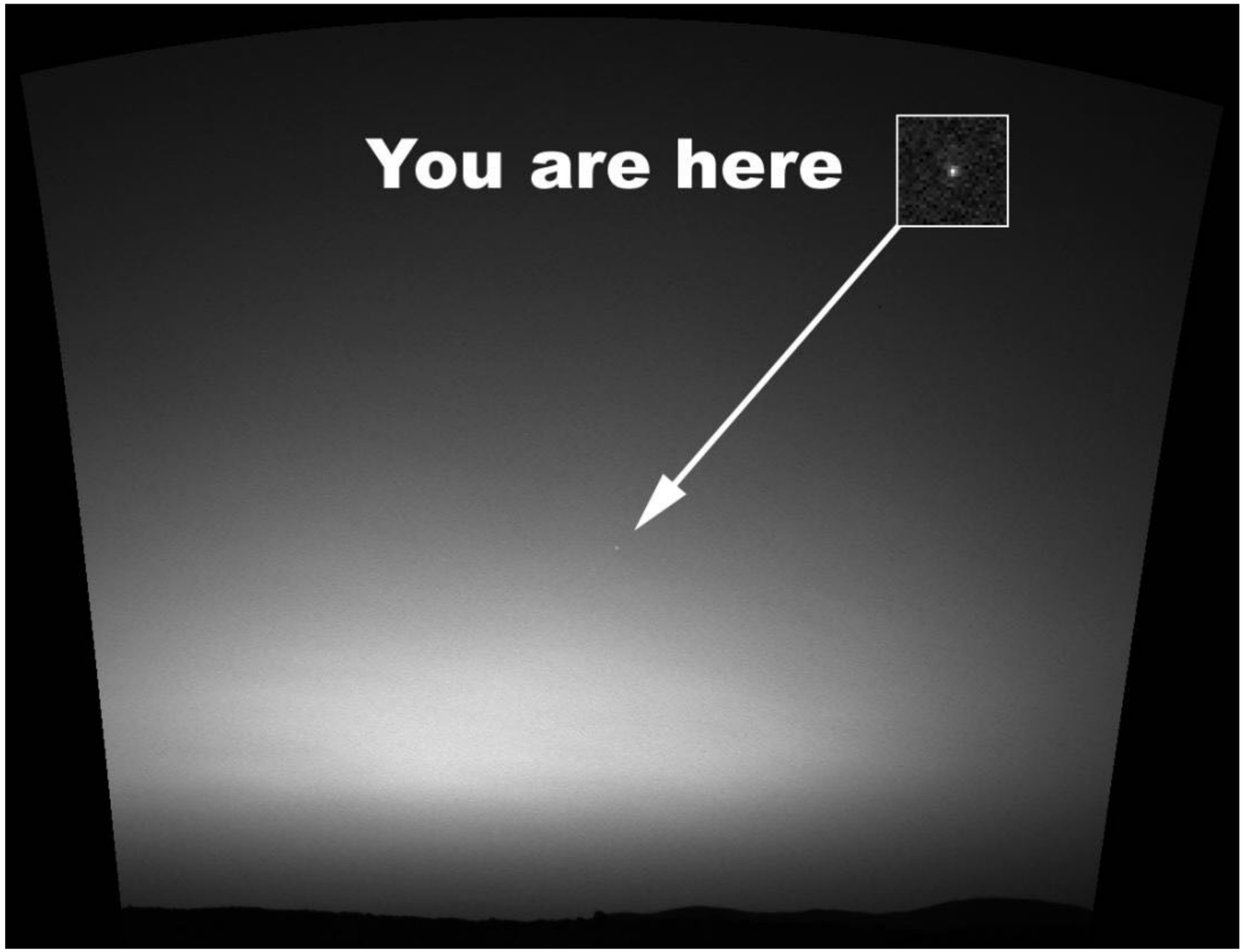
The MESSENGER satellite captured this view of Earth and the Moon on May 6, 2010, from its orbit around Mercury

https://earthobservatory.nasa.gov/images/45710/earth-and-moon-from-mercury

What objects are these?

Earth as seen from Mars

This is the first image ever taken of Earth from the surface of a planet beyond the Moon. It was taken by the **Mars Exploration Rover Spirit** one hour before sunrise on the 63rd martian day, or sol, of its mission.

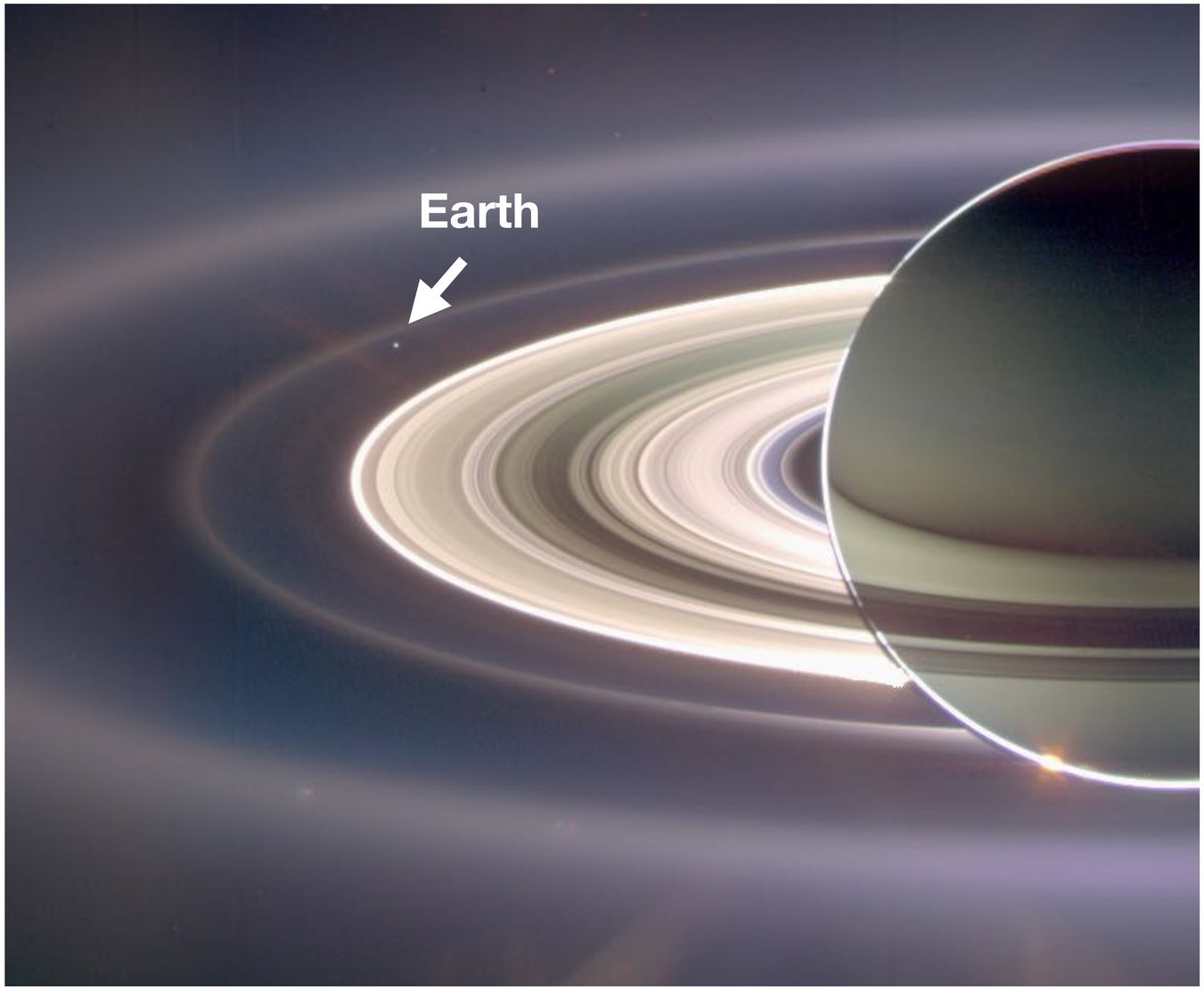


https://photojournal.jpl.nasa.gov/catalog/PIA05547

What objects are these?

Earth seen from Saturn

This image was taken by
the Cassini spacecraft over nearly three hours on September 15, 2006. The Sun is behind Saturn and illuminates the rings from behind.



https://earthobservatory.nasa.gov/images/7314/a-view-of-earth-from-saturn