

Introduction to Space Astronomy & Exploration
August 24, 2020

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See class syllabus at:
<http://lunar.colorado.edu/~jaburns/astr2020/>

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Fiske Planetarium

We will meet for class at the state-of-the-art **Fiske Planetarium**.




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Covid-19 Rules

Required safety measures at CU Boulder relevant to the classroom setting include:

- maintain 6-foot distancing when possible,
- wear a cloth face covering (over nose and mouth), especially when unable to maintain a distance of at least 12 feet,
- clean local work area,
- practice hand hygiene,
- follow public health orders, and
- if sick and
 - you live off campus, do not come onto campus (unless instructed by a CU Healthcare professional), or
 - you live on-campus, please alert CU Boulder Medical Services.

Students who fail to adhere to these requirements will be asked to leave class.

Must complete an online Daily Health Form!

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From Sputnik to Star Trek....




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Space in Popular Culture




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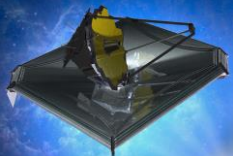
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Outline of Today's Class

- Course Goals
- Course Information
- Course Overview



International Space Station (ISS)



James Webb Space Telescope (JWST)

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Goals: Address These Questions

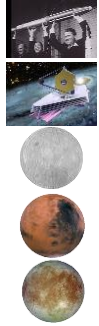
1. How do we explore space with humans and robots?
2. How does the U.S. history in space with the Apollo program, the Space Shuttle, and the International Space Station prepare us for further space exploration?
3. How will robotic and human spacecraft travel to the Moon and Mars? What are the challenges of living on an alien, hostile world? Where else might we explore in the solar system?
4. What will we learn about the cosmos from the Hubble Space Telescope, the James Webb Space Telescope, X-ray observatories, and low frequency telescopes on the farside of the Moon?

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Topics for this semester

- Laws of Motion, Energy, Gravity.
- The U.S. space program – from Explorer 1 to SpaceX.
- The Design, Operation, and Science for Space Telescopes and Space Science Missions.
- Exploration targets
 - The Moon
 - Mars
 - Gas Giant Planets & their Water World moons
 - Ice Giant Planets, Pluto, & the outer solar system
- Exoplanets and Interstellar travel



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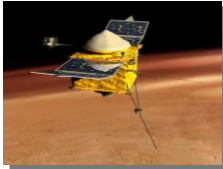
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Course Information

Astronomy 2020 Home Page:

<http://lunar.colorado.edu/~jaburns/astr2020/>

You can find all **assignments and handouts**, a **course calendar**, **lecture notes**, and other useful things here!



MAVEN at Mars – led by CU scientists!

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How to succeed in this course

- **PUT IN THE TIME:** 3 credits at CU → 6-9 hours outside of the classroom each week.
- **DO ASSIGNED READING BEFORE CLASS!**
- Talk to me during office hours via Zoom, and ask questions in class & during recitation.
- *Study together with others who are in the class.*
- **In-person classes end on Nov. 25th with 3rd exam on Nov. 23rd. Do not leave for Thanksgiving break before Nov. 25! Classes after Thanksgiving will be via Zoom.**



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How to succeed in this course

Astronomy Help Room

Tuesdays, Wednesdays, *AHR!*
and Thursdays
2 PM- 7 PM
via Zoom

Come get free help
with your physics,
astronomy, and math
homework!



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Cell Phones and Laptops

Please turn off
your cell phone
and laptop
during class!

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Class Exercises – asking why?

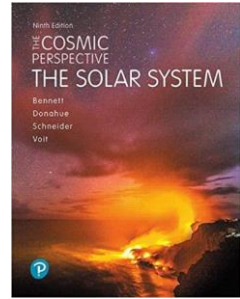


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For Next Class

- Remember- you can get a copy of these slides after class from the course website!
- Reading: article posted on class website on “The Illusive Why of Space Exploration”.
- Think about when you want to do your *Space in the News* presentation. Sign-up next class.



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