



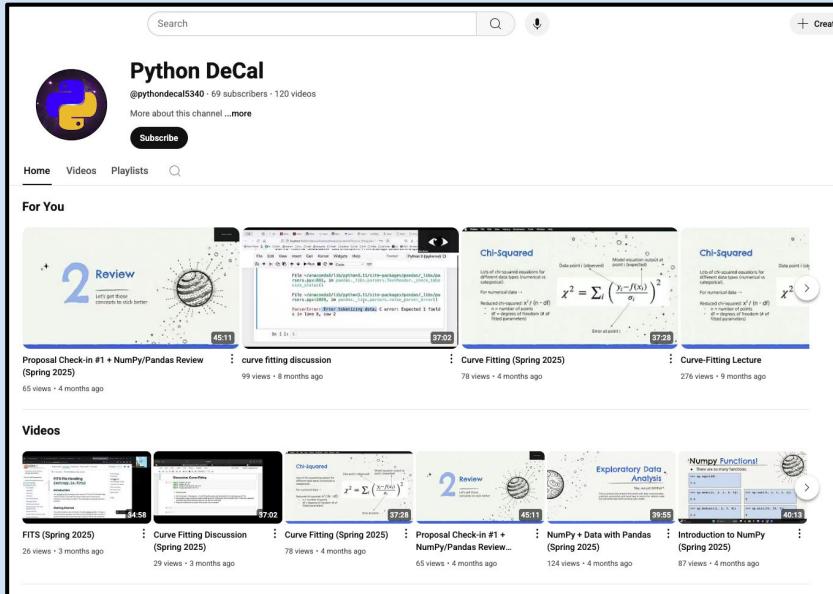
wELCOME TO THE PYTHON DECAL!

Introductions + Syllabus + Installations
[Class 1] January 26th, 2026



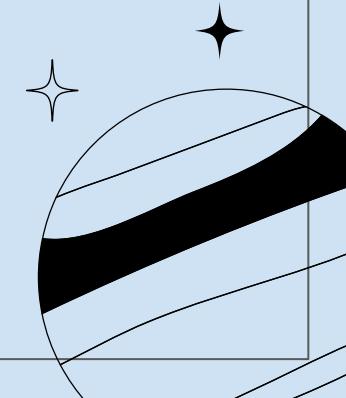


LECTURES WILL BE RECORDED



This class will be
recorded and posted to
our YouTube Channel!

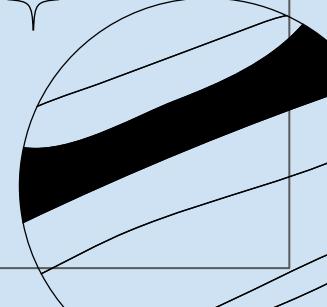
Subscribe :)



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OVERVIEW FOR TODAY!

1. Introduction to the course
2. Meet the Python DeCal staff!
3. Icebreaker :D
4. Syllabus
5. Installations
 - a. Anaconda
 - b. VS Code
 - c. Git
6. Fill out the engagement assignment





* 01 *

Python DeCal Goals

Plus some background information



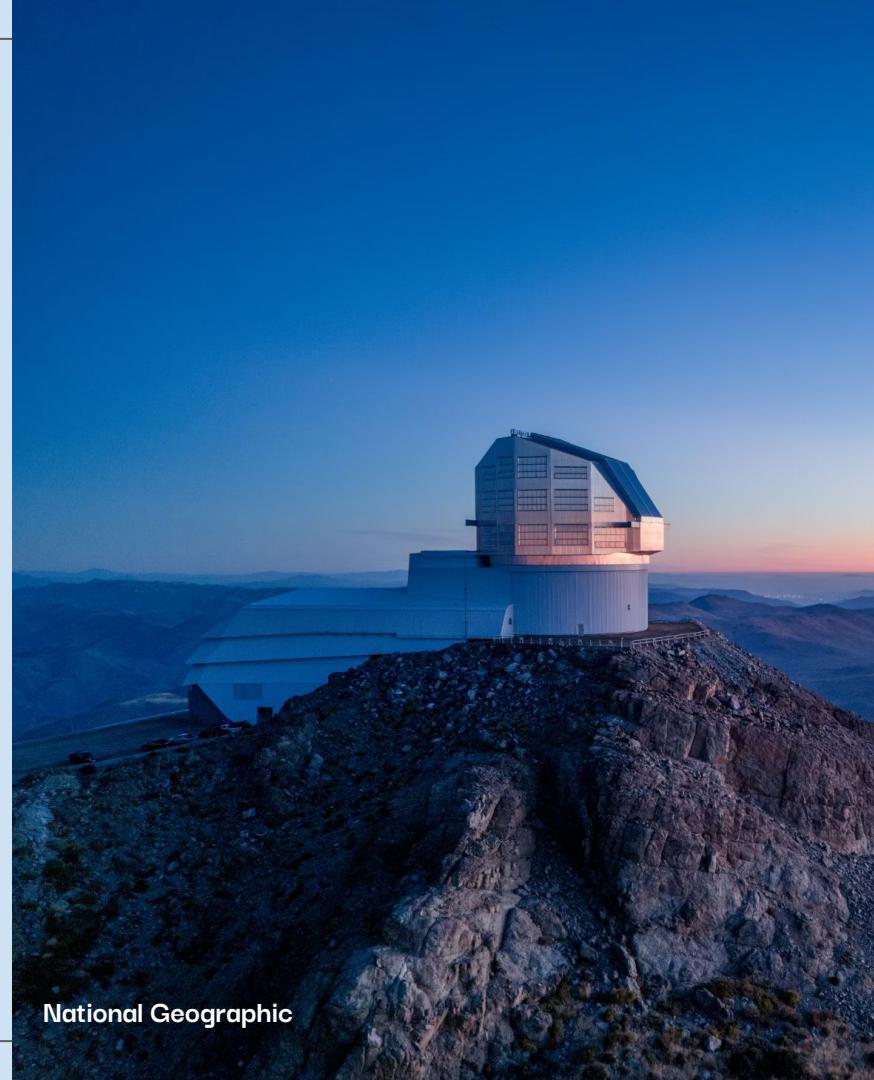


FIRST LIGHT: vera c. RUBIN OBSERVATORY

How Astronomers Will Deal With 60 Million Billion Bytes of Imagery

The Vera C. Rubin Observatory will make the study of stars and galaxies more like the big data-sorting exercises of contemporary genetics and particle physics.

Each image taken by Rubin's camera consists of 3.2 billion pixels that may contain previously undiscovered asteroids, dwarf planets [supernovas and galaxies](#). And each pixel records one of 65,536 shades of gray. That's 6.4 billion bytes of information in just one picture. Ten of those images would contain roughly as much data as all of the words that The New York Times has published in print during its 173-year history. Rubin will capture about 1,000 images each night.



National Geographic



HOW TO STUDY THE UNIVERSE

- Astronomers collect a lot of data every single night.
- You need to first reduce data to draw conclusions.
- Programming is a super helpful tool for analyzing data.
- This class is a great place to learn an introduction to programming!



Vera C. Rubin



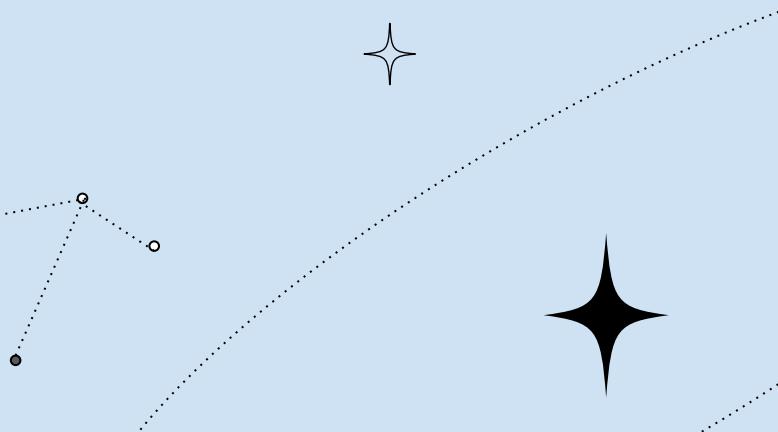
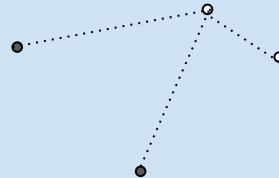
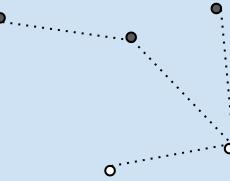
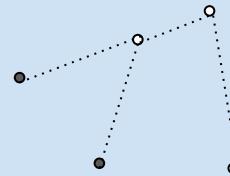
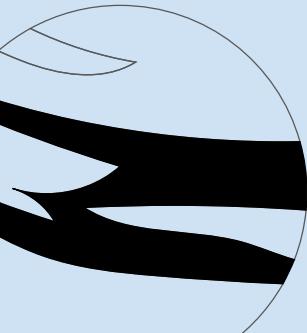


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Introductions

Meet your instructors and interns.

InSTRUCTORS

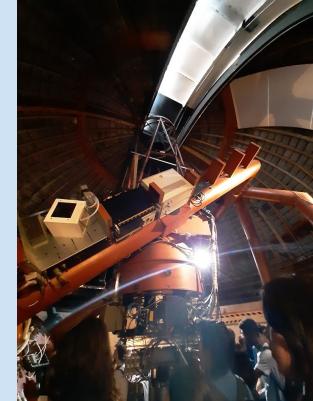




KATIE MORA (HEAD)



- 3rd year
- Astrophysics (+ Aero Eng. Minor???)
- Research!
 - Supernovae, composite structures
- Career interests:
 - Low frequency instrumentation,
astronautical vehicle design
- Misc. facts & interests:
 - Gym bro (unfortunate)
 - Triathlons, Surfing, Amateur Rocketry,
Anything else that involves touching
grass



C

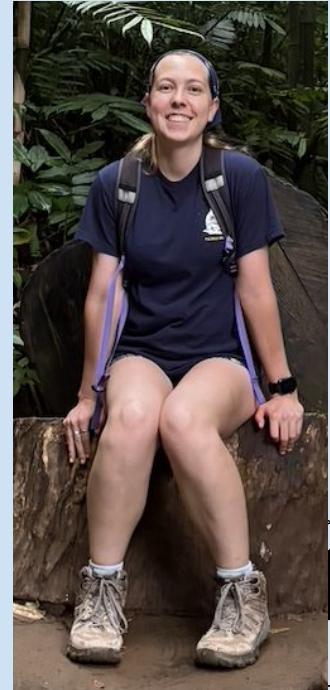
Brianna Peck

Who am I?

- 4th year
- Astrophysics + Physics
- Python DeCal, ULAB, UGSI for ASTRON C10
- I love to run, hike, hang out with my cat and drink coffee :)

Research:

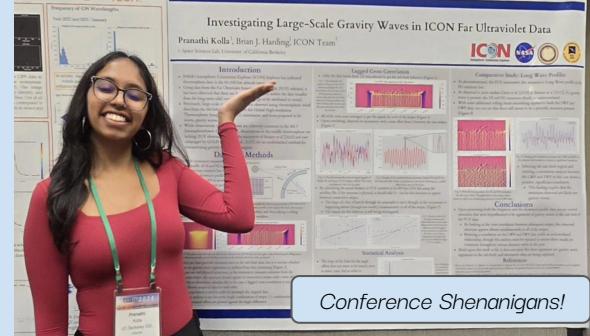
- Telescopes instruments!
- Adaptive optics
- Black holes
-



PRANATHI KOLLA

A little bit about me :)

- 5th year; Astrophysics & Data Science
- Research...
 - Space Weather & Atmospheric Dynamics!
 - ICON team @ Berkeley SSL;
 - Geospace team @ MIT Haystack
 - Radio Astronomy
 - ...basically → Lots of Data + Space!
- Other things I do include: theater (tech), travelling (30 countries now!), swimming, concerts, reading and *lots* of yapping.





Mira BHATT

- Fifth year (let me out)
- B.A. Data Science -> M.Eng in EECS
- SLAC Accelerator Lab 2x -> Apple SWE in Photos 2x
- Current Research
 - Neural ODE applications
- I like to crochet, fold origami, look at birds, and write sci-fi :)
- Better at CS/DS questions, less good at Astro 😅



C

WILLIAM LEE

- Sophomore
- Physics + Math double major
- Data Science Minor
- Research:
 - ML + dark matter halos
 - 21-cm cosmology
- Love:
 - Food and cooking
 - Hanging with my gf :)
 - Sports
 - Travel (Italy 2026!!!!)
-





safia barmada

- Third-year
- Astrophysics + Molecular & Cell Bio double major
- Research:
 - Developmental genetics
 - Cosmology
- Love:
 - Food and cooking
 - Dance
 - Trips to SF



M

mariam helal

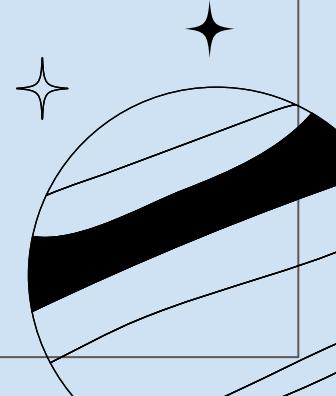
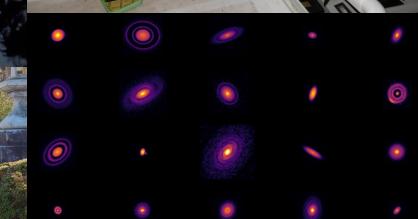


About me:

- Second-year
- Planetary Science + Astrophysics major
- Chemistry minor
- Research interests:
 - Astrochemistry, geochemistry
 - I like protoplanetary disks :)

Fun facts!:

- I like nature, cooking, & reading (& much more !!)
- I enjoy solving puzzles
-



MILANA BERHE ★*°.★



- Second-year astrophysics + political science (international relations) double-major + creative writing minor (talk to me abt poetry and screenplays!!!)

I unfortunately have a lecture during class, so come meet me in office hours!

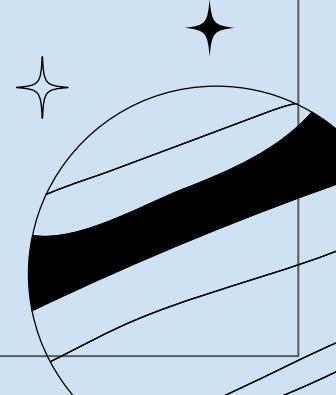


Banff,
Canada



Here are some other random facts:

- Russian was my first language
- I completed the world's largest corn maze (allegedly) last yr
- I traveled to 3 countries last yr! (Mexico, Canada, South Korea)



C

OLIVIA SILVA

★

General:

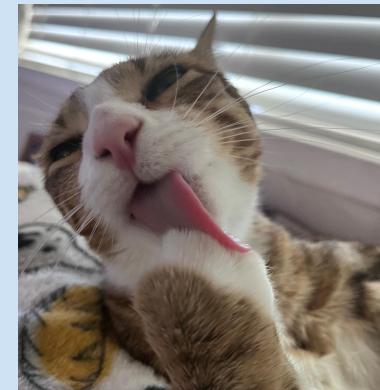
- Second year physics and math major
- From San Bernardino County, CA

Research Interests:

- Physical Chemistry + Quantum Optics

Fun Facts:

- I love cooking, origami, and reading, and martial arts
- I tutor math at the SLC!



★



Interns

C

Annecy Jiang

- First-year
- Astrophysics + physics
- I like researching the evolution of stars :)
- From alameda, CA (where the closest in-n-out is)
- I like music, movies, baking, and taking photos



MAKAIO JIMENEZ

Yo:

- Third Year
- Astrophysics
- Really Like Neutron Stars and Space Simulations

Fun Facts:

- In A Band (_pipedreams on Instagram)
- Drummer, Audio Engineer (Chat with me about music and audio)
- Never been on a boat
- Bald (Not Fun)



C

NATHAN DEBEECH



Hello!

- First-Year
- Physics major

Wildly curious factoids:

- I have been doing exposure therapy with pickles
- I want to open a sandwich shop
- I have three baby teeth





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Icebreaker

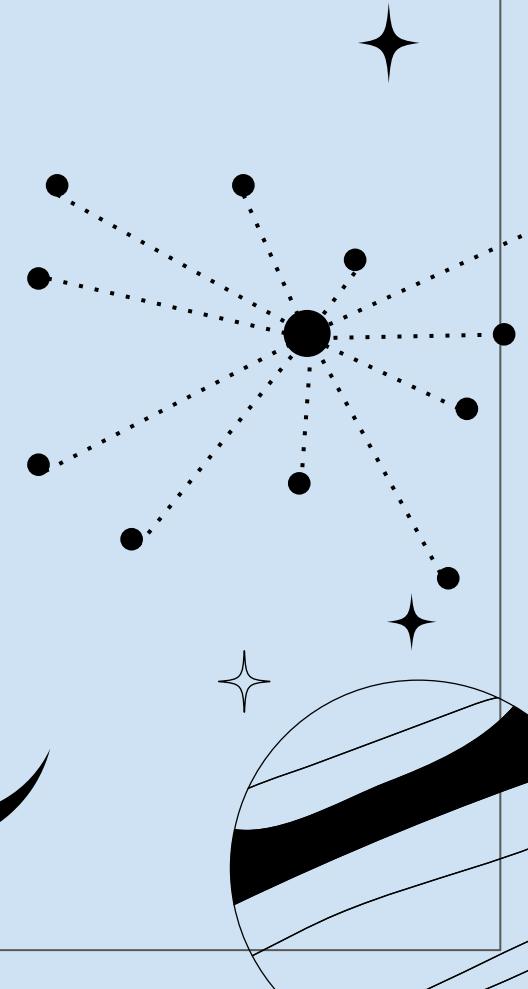
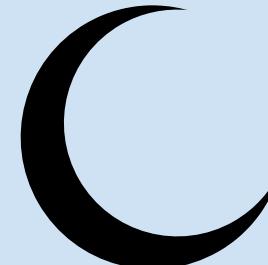
Get to know a couple classmates

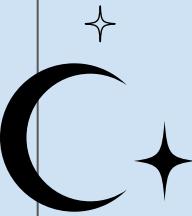


ICEBREAKER

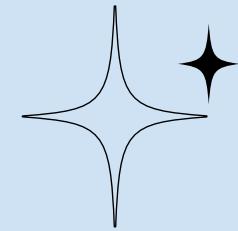
With the people at your table,
share the following information:

- Name
- Major (or field of interest)
- Year
- Favorite astronomical object
- Favorite song!



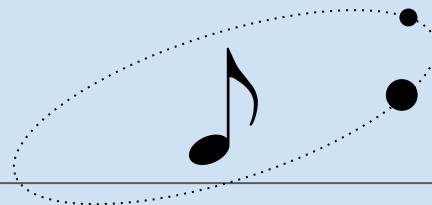
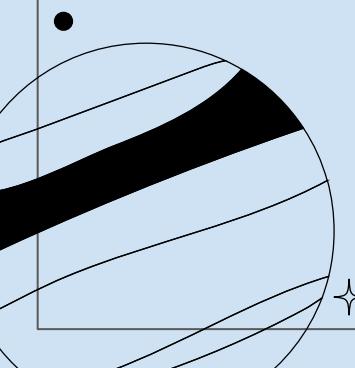


ICEBREAKER (CONT.)



Please fill out this QR code!

We will make a class playlist with
everyone's favorite song!



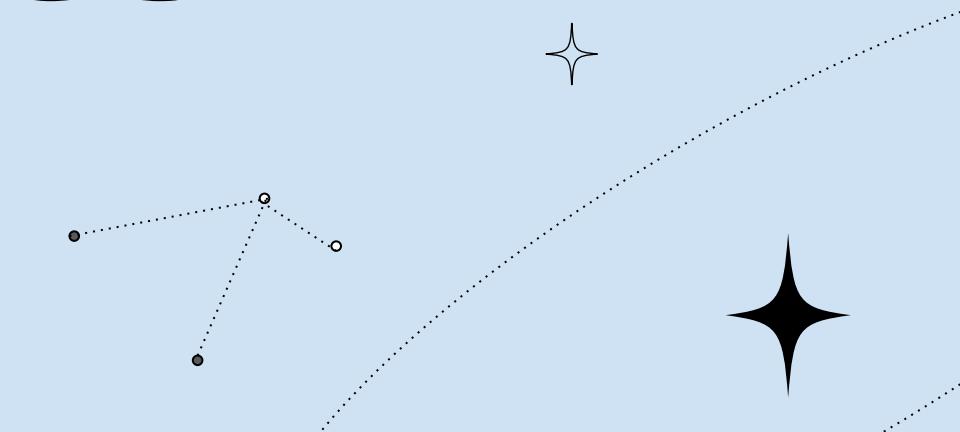
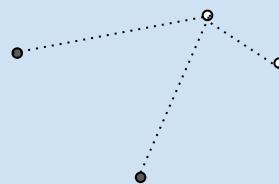
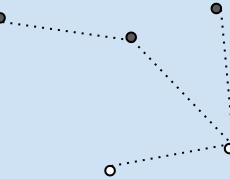
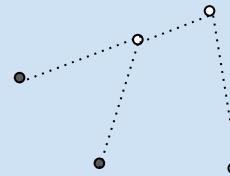
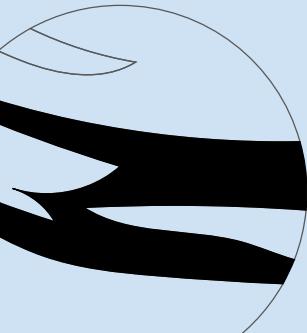


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Course Logistics

Expectations for the semester

SCHEDULE + RESOURCES

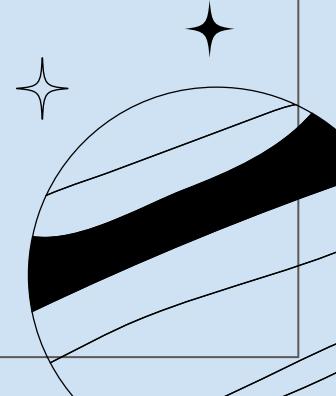




SCHEDULE

Generally we will follow this schedule:

- Monday = lectures
 - Lecture
 - Examples
 - Demos
- Wednesday = discussions
 - Lecture review
 - Practice questions





READINGS

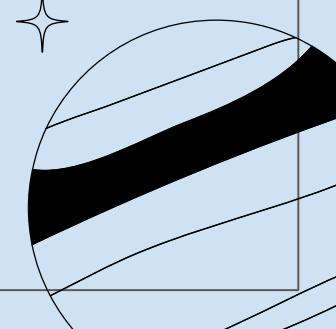
There are no required readings for the Python DeCal

There is a textbook written by a previous instructor, it is linked in our syllabus

If students would like us to assign readings to certain topics each week we can

The code for lecture 1 check is welcome!

-





IMPORTANT RESOURCES

1. bCourses
2. Gradescope
3. YouTube Channel
4. Ed Discussion
5. Office Hours
6. Email

•





LOCATION OF SOME RESOURCES *

Spring 2026

Home
Assignments
Grades
People
Pages
Files
Syllabus

Ed Discussion →
Gradescope →

Ed Discussion
Gradescope
Academic Integrity

Directed Group Study (Spring 2026) ↗



Python DeCal

Welcome Peeps! This is the Python DeCal for Spring 2026. In this class you will learn the basics of how to write programs in python in the context of physics and astronomy. We are so happy to have you in our class and we want to make this course as beneficial for you as possible.

Instructors: Katie Mora, Brianna Peck, Charlie Tolley, Pranathi Kolla, Mira Bhatt, Mariam Helal, Safia Barnada, William Lee, Olivia Silva, Milana Berhe

Interns: Annecy Jiang, Makao Jimenez, Nathan DeBeech

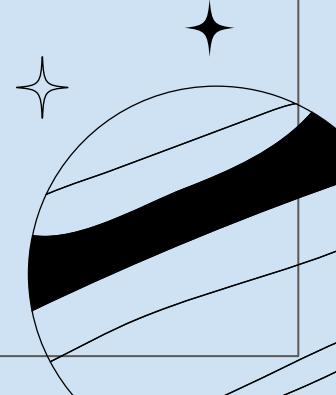
Lecture: Mondays & Wednesdays, 11:00-12:00 PM in Campbell Hall, Room 131

If you cannot attend the in-person lecture, you can participate asynchronously by watching the recorded lectures on our YouTube channel. Recordings from previous semesters are also available there.

YouTube Channel: https://www.youtube.com/channel/UCHF18dgee7nYINWaXyy_04g ↗

DeCal Website: <https://pythondecal.github.io/> ↗

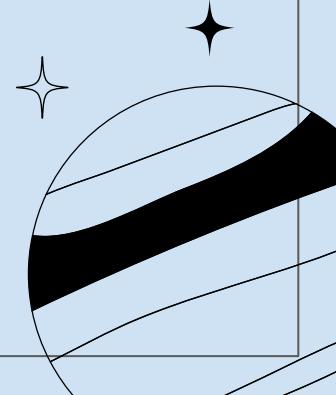
YouTube Channel →





bCourses

- Slides + demos are posted on bCourses
- Homeworks are posted on bCourses
 - Released on Mondays
 - Due the following Wednesdays (**1 + ½ weeks** after they have been released)
- Lecture Checks linked at the end of the slides
- Other resources are posted on bCourses
- Final Projects posted on bCourses
 - More on this in a few slides



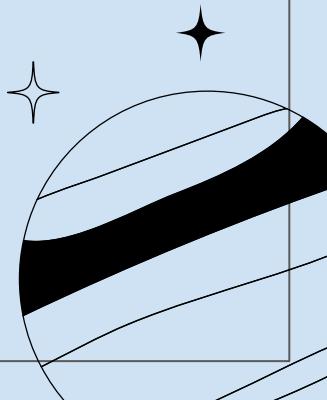


Gradescope

Everything is due on Gradescope!

- Homeworks
- Passwords to Google Forms
- Final Project Assignments

ONLY Lecture Checks are linked on slides, which are on bCourses.

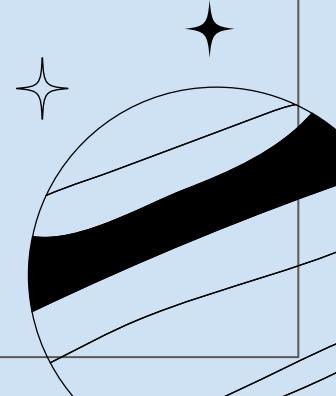




YOUTUBE CHANNEL



- **All lectures discussion recordings are posted on our YouTube Channel**
- **If we don't post within 24 hours, please email Katherine Mora or let an instructor know during class or office hours**
- **Please still come to class! Don't abuse the lecture recordings**



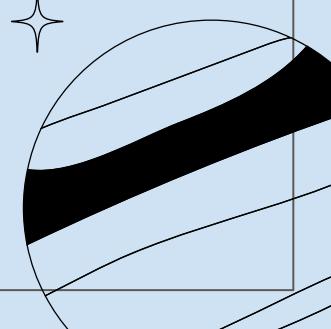


ED DISCUSSION

A place to ask questions and receive answers from instructor or your fellow peers

Anonymous! But the instructors will know who you are

A very underutilized resource in the Python DeCal! Please ask us questions!





OFFICE HOURS

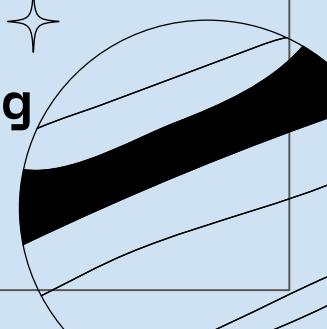
TBD! We will posted by next week

We will send out a when2meet after class, please take a couple minutes to fill out to request office hours times

We will try to pick times when the most students are available

Will be posted on home page of bCourses, announced during lecture and on the bCourses announcements

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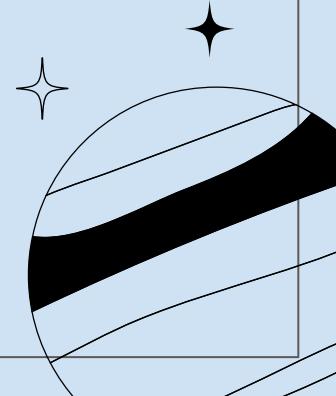
EMAIL

Please use EdDiscussion first!

But if you need to contact a member of the staff, please use:

[ASTRON 98] or [PYTHON DECAL]

in the header so we can find it quicker



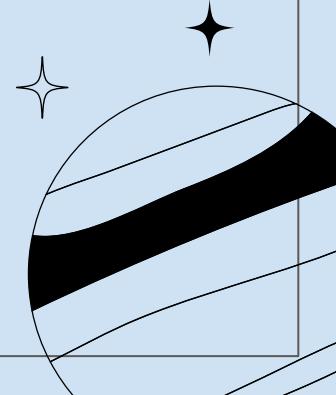


DISCLAIMER!

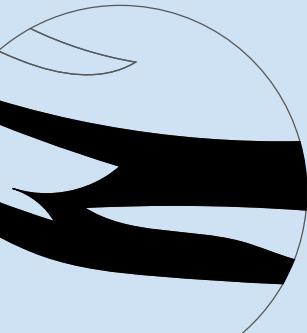
We will do our absolute best to give you as much knowledge as possible about Python and computing

However, a lot of time you will have to do your own research!

A good skill to pick up is learning how to search around the internet for how to use techniques



GrADING





GRADING BREAKDOWN

40%

Final Project

40%

Homework

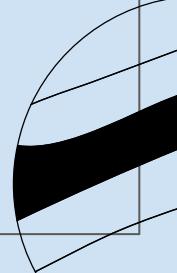
20%

Participation

To pass this class, you need at least a 70% and an attempt on all Final Project assignments.



There will be no regrades!





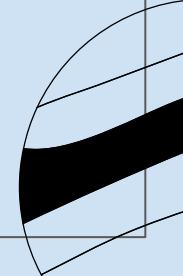
GRADING BREAKDOWN (CONT.)

Homework (40%):

- 10 homework assignments
- Posted on bCourses
- Due on Gradescope,
Wednesdays at 11:59 PM

Participation (20%):

- Lecture/Demo Checks
- Surveys
- Office Hours
- Showing up to class





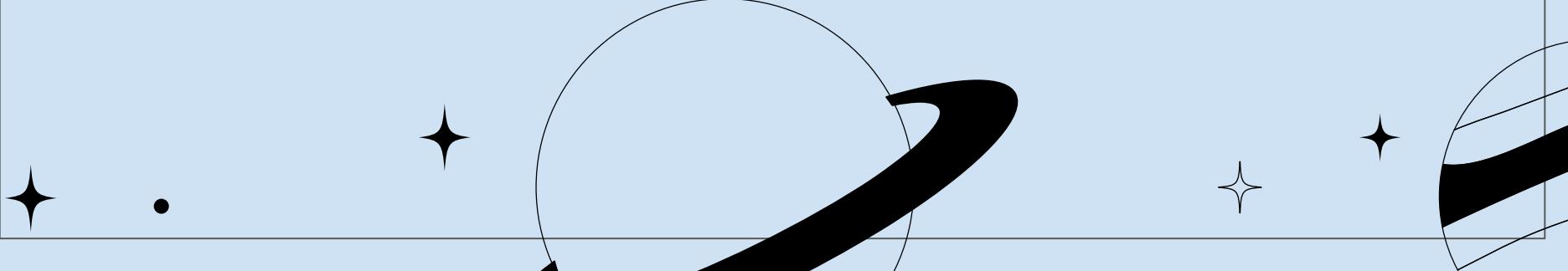
GRADING BREAKDOWN (CONT.)

Final Project (40%):

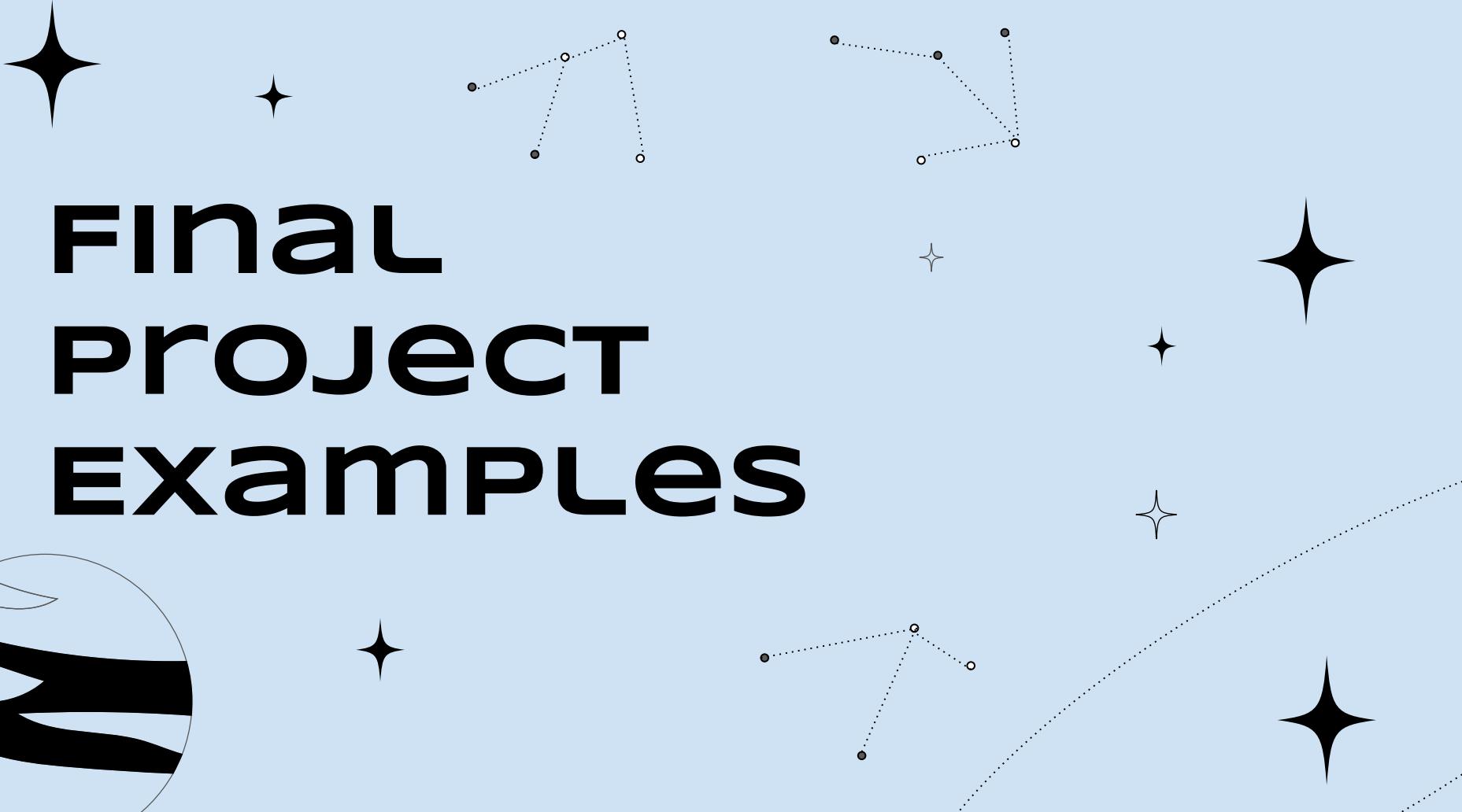
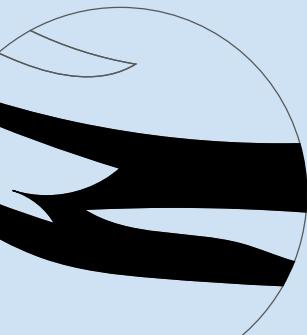
- Check-in #1
- Proposal
- Check-in #2
- Presentation + Report

Presentation Details:

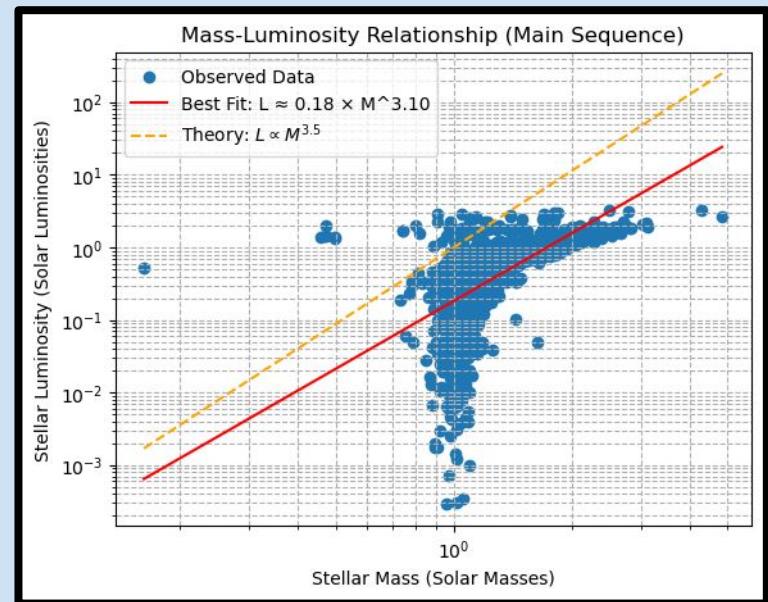
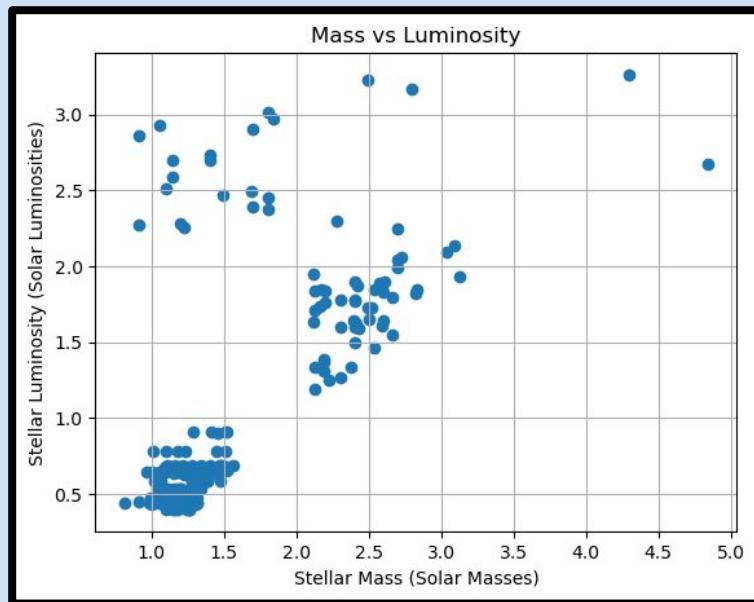
- Last week of instruction
- 1-2 people per group
- 1-3 minutes (that's it!)
- Show off your skills!



Final Project examples

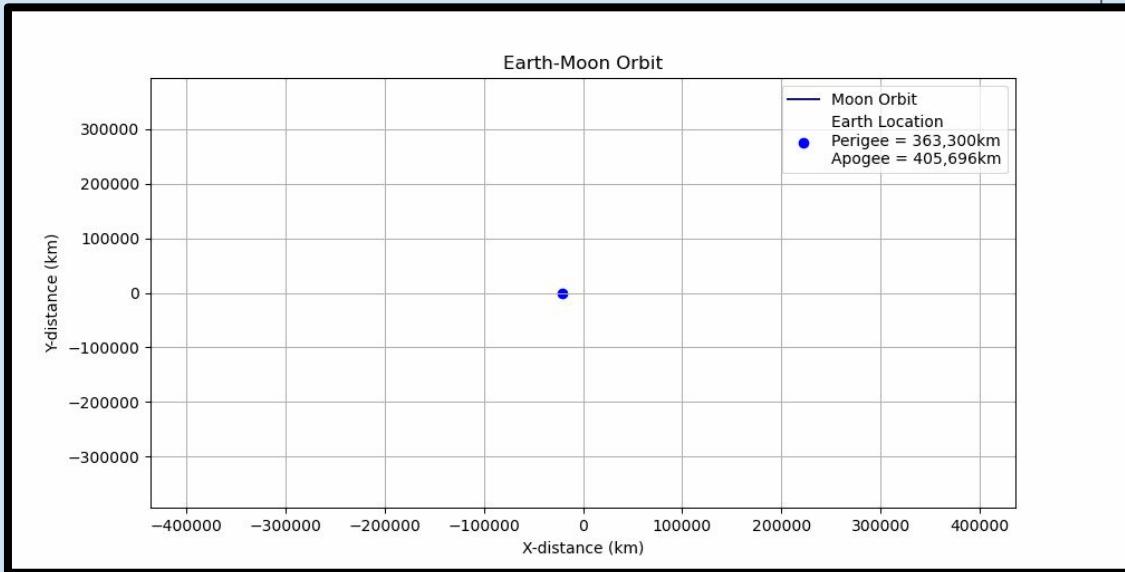
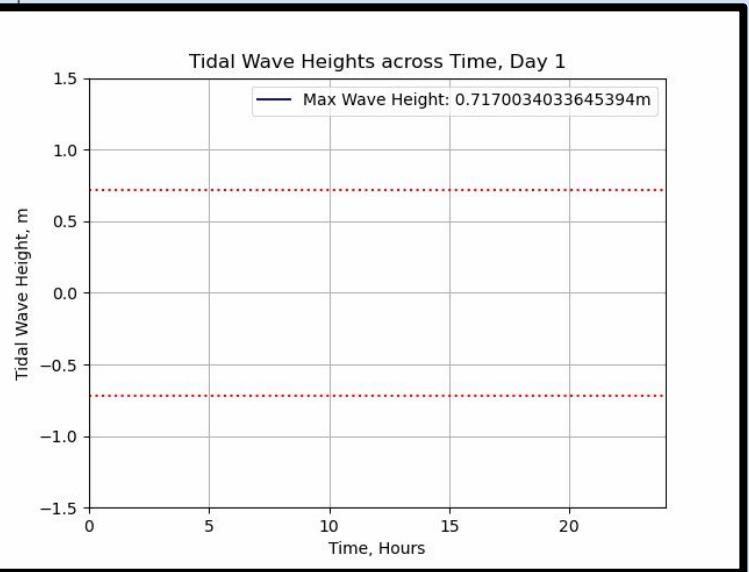


EXAMPLE: DATA ANALYSIS



Featuring: Milana!

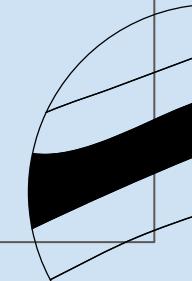
EXAMPLE: Animation



Featuring: Olivia!

C

EXAMPLE: Game

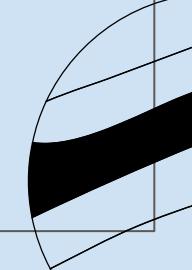
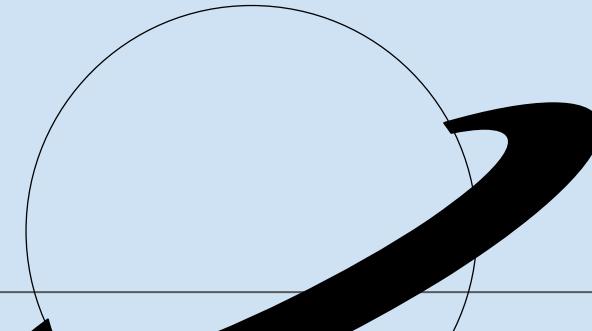




DISCUSS WITH YOUR PEERS

Discuss with the people at your table:

- What do you need to pass the class?
- Three other important things that were just covered





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Installations

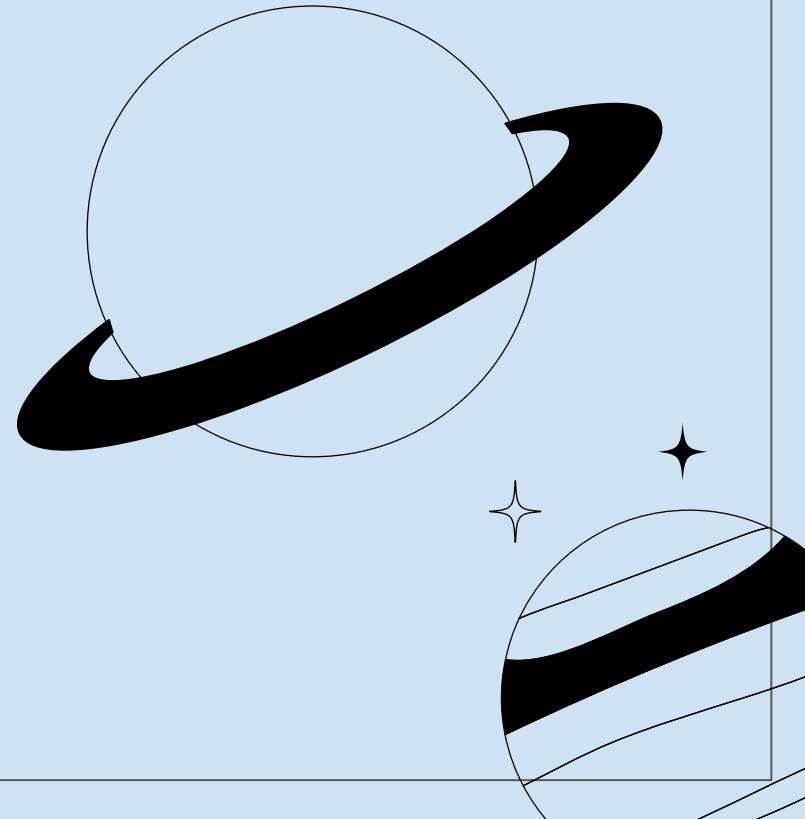
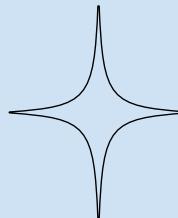
Download needed software



INSTALLATION GUIDE

Please follow the entire
Installation Guide on
bCourses:

- Git + GitHub
- Anaconda
- VS Code

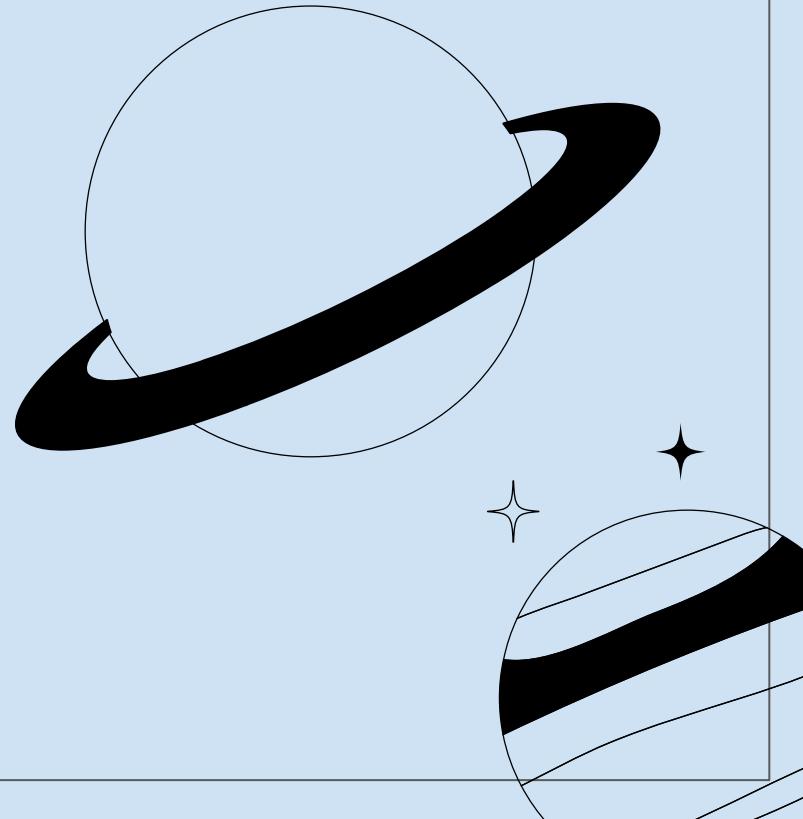
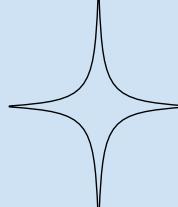




INSTALLATION GUIDE

Please complete the guide
BEFORE next class.

It will really help us be able
to start teaching Python
sooner!



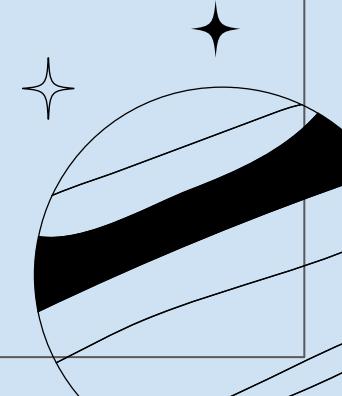


INSTALLATION OFFICE HOURS



Announcement later today about installation office hours throughout the week (zoom only)

Email available 24/7





★ 06 ★

Lecture Check

Show us what you know!



LECTURE CHECK



Fill out the engagement assignment

here: [Lecture 1 Check: Syllabus + Installation - Google Forms!](#)

Slides posted on bCourses.

Always due 2 days after class.

Takes <5 minutes to complete.

-

