# Course Syllabus

## ASTR 1210: Intro to Sky & Solar System

Mo, We, Fr  Section 3: 11:00-11:50am  107 Clark Hall

*"The cosmos is within us. We are made of star-stuff. We are a way for the Universe to know itself."* – Carl Sagan

**Instructor**: **Matthew Pryal (https://astronomy.as.virginia.edu/matthew-pryal)** (he/him)

**Office**: Astronomy Building Room 243
**Email**: **pryal@virginia.edu (mailto:pryal@virginia.edu)** or **mp5qe@virgina.edu (mailto:mp5qe@virgina.edu)** (Note: Please indicate the class and section in your emails to me. For example an email subject should read: '[ASTR 1210-003] *The Subject of Your Email*')
**Office Hours**: Tuesday 1:15 – 2:30 pm and Thursday 9:30-10:30 am (no appointment necessary) or other times via appointment
**Zoom Room**: [redacted] (Note: this is not the synchronous lecture link)

- Note that for my office hours I give priority to those that come in person. If you plan on meeting via Zoom, you should email me beforehand and I will hop on my Zoom room if I'm currently not meeting with other students.

**Teaching Assistant**: [redacted] (they/them)
**Office hours**: by appointment
**Email**: [redacted]

**Course Schedule**: Please see the **course schedule (https://canvas.its.virginia.edu/courses/150948/pages/class-schedule)** to plan out your semester

## What's this course all about?

Would the constellations look the same if you lived on Pluto? What if you roamed the Earth with the dinosaurs? What would the night sky look like from one of Saturn's over 100 known moons? Why does the Solar System have 8 planets? And what's a planet in the first place?

The Universe can sometimes make us feel unimaginably small and insignificant. After all, you can fit over a million Earths inside the Sun. Light travels 186,000 miles every *second* and it still takes light more than 4 years to travel from the nearest star to the Sun. We see the nearest major galaxy as it was 2.5 million

years ago, not how it is *now*. And there are more stars in the observable Universe than grains of dry sand on all of Earth's beaches.

But despite being physically tinier than the planets, stars, and galaxies that make up the Universe you have something they do not: an ability to ***understand*** your place in the cosmos. You are fundamentally composed of the exact same elements that make up those large planets, stars, and galaxies – all forged in the cores of stars that died *billions* of years ago. In this sense we are composed of "star-stuff" and we truly are an avenue for the Universe to try to understand itself.

Rather than feeling small, this class aims to make you look up at the stars and feel big. To feel like an intimate member of the Universe, trying to figure itself out. On your journey this semester towards contributing to the Universe understanding itself you will:

- **Identify** our cosmic address and our physical place in the Universe to inform your philosophical understanding of your place in the Universe
- **Search for value** in the evolution of astronomical thought which has led to our current understanding of the Solar System
- **Use physical laws** applicable on the Earth **to explain** the formation, evolution, and appearance of objects in our Solar System and stars visible in the night sky
- **Investigate** the power of the **scientific method** and the process of science, and learn how to apply the scientific method throughout different aspects of your life
- **Develop problem solving skills** through the lens of astronomy that are applicable in all aspects of your life
- **Use modern tools of astronomical inquiry** (such as telescopes, planetarium software, and augmented reality apps) to further understanding and appreciation of the movement of objects in the sky and characteristics of objects in our Solar System

## Your Tools for Learning

**Investigative Astronomy Labs:** Throughout the semester you will have the opportunity to apply the concepts of astronomy in a more hands-on (and eyes-on…) way outside the classroom. We'll have four of these labs throughout the semester and specific information on each will be discussed closer to the date each lab is posted. Your lowest lab grade at the end of the semester will be dropped. These assignments are discussed generally below:

- Telescope Observing or Constellation Lab: Here you will have the ***option*** to complete one of two labs run by graduate student TAs in the Astronomy department: (1) Travel to the historic McCormick Observatory located on UVA grounds to observe night sky objects through its three telescopes (including the 26-inch refractor which was once the world's largest telescope) as well as explore its museum on Astronomy research done at UVA or (2) Get a detailed night sky overview as observed near the Astronomy department and learn how to identify night sky objects including constellations,

planets, deep sky objects, and the Moon. Both labs will be graded as 'pass/fail' in that if you score about an 85% on the lab you will be given a 100% for passing it.

- Telescope Analysis Lab: Utilizing cameras and science instruments has revolutionized modern astronomy. In this lab you'll remotely request observations and analyze images of objects in our Solar System and beyond from the comfort of your home/dorm room, like modern astronomers, using a research grade reflecting telescope at Fan Mountain Observatory – located 20 miles south of Charlottesville, away from the light pollution of the city.
- Planetarium Software Labs: For two other labs you'll make use of free planetarium software located online to explore the location and motion of objects in the sky and to further investigate topics discussed throughout the course.

**In-Class Exercises:** In order to measure your progress in learning each day's concepts, you will be asked to answer short questions before and/or during each class. You will solve a variety of problems using the Poll Everywhere software. These questions are designed to help you develop your problem-solving skills, engage with your peers through discussion, encourage you to reflect on your own learning, and to help you better learn the material. It will not be used solely for attendance but to guide you on your journey of learning. Your responses will also provide me with valuable immediate feedback on how I can make the class better. Poll Everywhere is discussed in more detail below.

**Reflections:** I will ask you to periodically reflect on how you are doing in this class, how you are meeting your expectations, how you are learning, how you are meeting my expectations, and how might I improve the class during the current semester. You will do this using the Canvas site and questions will range from short responses to multiple choice. I care about how I'm teaching and how you're learning, and if what I'm doing isn't working for you, I want to know. I will try to be flexible within the semester to adjust my teaching style to best fit you and your classmates' needs. These reflections will be ungraded and serve the purpose of enhancing the learning process for all of us.

**Weekly Homework:** Homework will act as a vital step towards having a deeper appreciation for the Universe through continuous engagement of course content. This will allow you to build important mathematical skills, recall course content so that you can better engage with labs and succeed on formal assessments, and become better problem solvers. Homework will be due every week and completed through Canvas. See details regarding the HW below.

**In-Class Assessments:** A crucial part of feeling more connected to the Universe is a broad foundation of knowledge on the subject. These more formal assessments will challenge you with a series of multiple-choice questions and short response problems to assess your ability to integrate concepts and methods from class discussions, weekly assignments, and lab exercises. Assessments will be your way to know that learning is occurring and all of the above tools for learning will work towards making the path towards success on these assessments clear and achievable. We will have three of these in-class throughout the semester as outlined in the course calendar.

**Final Exam or Final Project**: At the midway point of the semester, students will have the **option** to either complete a fully comprehensive final exam or complete a group final project (described below) to

act as the final 20% towards their final grade. I recognize that students come from a diverse background and like to engage with course material in their own unique ways. This option will hopefully allow you to choose the option that works best for you this semester to achieve your goals for this course and feel a greater sense of 'ownership' in your learning throughout the semester. Each choice will have its own benefits and drawbacks and so you will have to make the decision that will work best for you.

If you choose the Final Exam: The final exam will be administered similarly to the in-class assessments but will consist of material throughout the entire semester and be about 1.5x in length. You will have 3 hours to complete the final exam and it will be administered during our scheduled final exam block.

If you choose the Final Project: The final project will be a digital media project where you will work with your peers in diverse teams, like real scientists, to highlight an astronomical concept/object discussed in class that resonates with you and makes your feel more connected with the Universe. As a class, we will compile these projects into an online magazine called 'Star-Stuff.' The development of this project will lean on the skills and concepts learned through homework, labs, discussions, and reflections over the semester.

This project will give you the opportunity to get creative! Write an article (with images), produce a video, record a podcast, create a gallery of paintings, develop an infographic, a video game, animation, a children's book, or something else entirely. Development of this project will take place incrementally over the course of the semester including via feedback from your peers. More details about the exact procedure for the project, including grading, will become available during the semester. See examples of similar types of projects done by my students from my Fall 2024 ASTR 1210 class at this **link (https://sites.google.com/virginia.edu/astr1210-fall2024?usp=sharing)** .

## Course Materials:

For this section of ASTR 1210 you are required to have the following **four** items:

1. **Textbook**: ***OpenStax Astronomy*** ***(https://openstax.org/details/books/astronomy-2e)*** *(version 2e)*, the free online textbook by Fraknoi, Morrison, and Wolff.
2. Access to **Poll Everywhere** - the interactive classroom system accessible for free via Canvas
3. The planetarium program **Stellarium,** which can be found at **https://stellarium.org (https://stellarium.org/)** and is available for Mac, Windows, and Linux systems free of charge.
4. A (free) mobile **stargazing app**. For iPhone users I recommend 'Star Chart' and for Android/Google Phone users I recommend 'Star Walk 2'

**All course materials will be available entirely free for students. Previous iterations of the class and other sections have costs totalling nearly $100 per student. I am now in the second year of the transition into free course materials and with that comes the development of new and personalized HW and labs (among other content). Please be patient for any issues that may come up this semester during the transition. Additionally your feedback on the effectiveness of this material will be vital towards my implementation of it in future semesters.**

## Grades:

Your final grade will be based on in-class exercises, homework, investigative astronomy labs, formal assessments, and the final exam/project. Additionally, your grade can be supplemented by extra credit opportunities as described in more detail below. The weighting of each tool for learning towards the final grade is as follows:

- Homework (25%) – A total of 13 HWs total for about 2% per homework (note that your lowest HW grade will be dropped at the end of the semester)
- Labs (20% total) – Three labs for a total of 6.67% per lab (note that your lowest of four labs will be dropped)
- In-Class Assessments (20% total) – Three formal assessments for a total of 6.67% per assessment. See class schedule for dates
- In-Class Exercises (15%)
- Final Exam/Project (20%)
- Extra Credit (up to +3%)

Grades will be posted on the course site. Final grades will be assigned as follows:

| Letter Grade | Percentage | Letter Grade | Percentage |
|---|---|---|---|
| A+ | >100% | C | 73-76.9% |
| A | 95-100% | C- | 70-72.9% |
| A- | 90-94.9% | D+ | 67-69.9% |
| B+ | 87-89.9% | D | 63-66.9% |
| B | 83-86.9% | D- | 60-62.9% |
| B- | 80-82.9% | F | <60% |
| C+ | 77-77.9% | Pass | >60% |

Notes on In-Class Assessments:

In-class assessments will *not* be fully comprehensive apart from the inevitable concepts that overlap between subjects covered throughout the class (this is just the nature of how science and learning works). Each assessment will consist of about 80% of the credit toward multiple choice questions and 20% of the credit short answers questions (likely 25 multiple choice questions worth 1 point each and 2 short answer questions worth 3/4 points each). These formal assessments will be administered in class

as noted in the course schedule. Students will be allowed a single double sided cheat sheet for all in-class assessments. An equation sheet will be provided on the assessment printout.

## Weekly Homework - via Canvas:

All HW will be completed entirely through Canvas via the assignments tab of the course site. Assignments will be due as specified in the class calendar but typically by 11:59pm each Wednesday (with some assignments due on Tuesday and Friday). Late assignments will be penalized 1% each hour, up to a maximum of 50% (unless an extension is granted by the professor). Therefore, after two days there is no additional penalty but the maximum grade earned would be 50%. Late HW will not be accepted after the final day of classes at 11:59pm. Whatever your HW grade is at this point will be your final grade for the semester unless an exception has been granted.

To avoid random guessing on HW, each question is graded for correctness. Due to the nature of Canvas assignments, each question can only be attempted once. For this reason make sure to start HWs early so that you can take advantage of discussing questions during office hours, with other students, in-class, etc. Since this is the second semester of me implementing Canvas HWs, this policy may be subject to change depending on how students are doing on HWs. If any changes occur throughout the semester, this will be noted in class and via a class announcement.

Please see the course schedule for a list of HWs. Note that homework accounts for 25% of your final grade and is the primary grading factor towards impacting your final grade. Make sure to take them seriously as they will allow you to assess how you are understanding material throughout the entire semester. HWs are designed to take around an hour to complete if you have remained engaged with the material during class. If you find you are consistently spending much more time on homework than an hour, please talk with the instructor in office hours or after class.

At the end of the semester your lowest HW grade will be dropped.

## Poll Everywhere:

It's in your best interest to attend every lecture as all assignments will pull directly from the topics discussed in class. Put simply, by ***actively*** paying attention during lectures, you will have to do the least amount of additional prep outside of class. We will be using Poll Everywhere (available for free via Canvas) to moderate in-class questions and activities. Poll Everywhere can be accessed via a laptop or any smartphone (or device) with internet access. Students should be automatically registered for Poll Everywhere and can access questions via my personal site: **https://pollev.com/pryalastr (https://pollev.com/pryalastr)** . Please let me know after your first class if you are having trouble accessing the site.

Each class will have about 3/4 in-class questions that will account for your classroom exercises grade. For each question you will get one point for answering the question and another point for answering it correctly when specified. Credit will only be given if the questions are completed live during class. You will need to earn 150 points over the course of the semester to get full credit for class participation.

With ~40 full lectures, you will have the potential to earn about 250 points of the 150 total points needed by the end of the semester. This means you can miss lectures throughout the semester (i.e. for sickness, travel, bereavement, etc.) and still likely obtain the full 150 points needed if you remain engaged throughout the semester. Once you reach 150 points, you can earn 0.5 'Star Stuff' points (see below regarding extra credit) for every 25 participation points you are above 150 point threshold.

By participating in each lecture and attempting to correctly answer the in-class questions, you are very likely to get the full 150 points for classroom exercises no matter what personal circumstances arise over the semester.

Students will not be allowed to make up missed questions. We will tentatively update class participation weekly (starting after the drop deadline) so you can check that your class participation grade is being registered properly by checking gradebook in Canvas. If you find that your score isn't properly being accounted, please notify the instructor immediately. **Note that you are not allowed to use another student's account to answer questions for them as this would be a violation of the honor code. Additionally students need to be present in-class to get credit for these questions. There will be periodic checks throughout the semester to ensure students are not accessing Poll Everywhere from other locations.**

Since In-Class Exercises count towards 15% of your final course grade, each Poll Everywhere point your earn will give you +0.1% towards the 15% total needed at the end of the semester.

(Optional) Technology Free Attendance:
I am implementing a new *optional* policy this semester to encourage students to more actively engage during lectures. All students are welcome to use technology to take notes, but those that decide to attend lectures entirely technology free (i.e. no notes on laptops, cell phones, tablets, etc.) will receive an additional poll everywhere point for every technology free lecture.

Technology has created an immense amount of positive impacts on our society, but it has also created drawbacks that, in the case of college classes, has at times hindered active learning. Part of this hinderance is the distractions/addictions that our technology has been specifically designed to create (and I am certainly prone to this too). Part of this optional policy is for you to be more kind with your own time and remove the allure of distractions since the more active you pay attention in lecture, the more free time you will have outside of it (since you won't have to re-teach yourself material). This policy is to encourage you a space to be free from your technology to engage more meaningfully in the process of learning (which I would argue is one of the best parts of being human).

I want to emphasize that this policy is entirely optional from lecture to lecture and you will still be able to easily earn the required participation points by attending lecture with technology as noted above. However, those treat every lecture as technology free will earn an additional 30+ participation points over the semester with this policy and I believe will do much better on HW, assessments, labs, etc. as a result of the more active engagement. If you choose to participate technology free then you will respond to in-

class questions using notecards that I will provide each lecture (and you will turn in at the end of lecture) rather than using the Poll Everywhere system.

### Technology Sabbatical Days

In a similar vein as the optional technology free lectures, we will have a handful of 'technology sabbatical' days throughout the semester where the class will be structured to encourage more peer discussions and in-class activities. In these classes, all technology (such as laptops, cell phones, tablets, etc.) will be ***required*** to be put away for the duration of the lecture. Hand written notes (via a notebook) will be allowed. The intention of these classes is to restrict distractions and to encourage deeper conversations about the course content with your peers for particularly important course concepts. These days are noted on the class schedule. Students will turn in written work at the end of these lectures to act as their Poll Everywhere points for the day and therefore points can only be awarded for in-person attendance. Lectures will still be recorded, but joining the class synchronously through Zoom will not allow you to earn any points towards Poll Everywhere for these days.

## Extra Credit:

Throughout the semester you will have the opportunity to engage with the course material in fun ways outside the classroom that could earn you credit towards your final course grade by earning **Star Stuff Points**. The overall idea for these extra credit opportunities is to make you feel more like an intimate member of the Universe trying to figure itself out. For every star stuff point you earn you will get 0.15% extra credit towards your final course grade, up to a maximum of 3% (i.e. 5 points = +0.75%, 10 = +1.5%, 15 = +2.25%, 20 = +3%). Some possible ways to earn 'star stuff points' are listed below. For a full list, see the 'extra credit opportunities' file in the Modules tab of the course site (**also linked here (https://canvas.its.virginia.edu/courses/150948/pages/extra-credit-information)** ).

In addition to completing the extra credit activity, you must write up a public blog (when applicable) about your experience of that activity in order to earn the full points. These blogs will be posted publicly to the Piazza site. The details of this blog will additionally be discussed in the Extra Credit Opportunities file. Note that the points listed in parentheses are estimates for the typical points offered for each activity but I reserve the right to scale those points up or down depending on the effort put into earning those points (e.g. an extremely short 'pop-sci astronomy book' may not be worth the same amount of points as a much longer book. When in doubt - ask the instructor).

Note that star stuff posts are limited to 3 posts over a 7 day span. This policy is discussed in more detail in the Star Stuff Canvas page.

Lying about the completion of an extra credit opportunity or using outside software without instructor permission to write your blogs (e.g. ChatGPT, LLMs, or other AI tools) is a violation of the honor policy and will be handled on a case by case basis.

**An (Incomplete) List of Ways to Earn Star Stuff Points**

- Stargaze for at least 1 hour on a clear night (+1 per night - up to three separate nights)
    - Note: Stargazing here refers to laying down outside on a clear night away from sources of light pollution (campus lights, full moon, etc.) and doing primarily nothing else but looking at the stars and chatting with any friends that may have joined you. Stargazing on a plane, in a car, or looking up as you walk home from class is not in the spirit of this extra credit opportunity.
- Go to **McCormick Public Night (https://astronomy.as.virginia.edu/public-nights-mccormick-observatory)** with a friend (+1)
- Read a hard Sci-Fi book with an Astronomy focus (+3) – see the Resources tab for a list of books that would count

- Read a Pop-Sci Astronomy book (+5) – see the Resources tab for an incomplete list of books that would count
- Go for a hike in the Blue Ridge Mountains (or equivalent) while considering the physical mechanisms that have shaped the views you see (+1)
- Watch an Astronomy themed movie (+1 – up to three times)
- Write an Astronomy themed poem, song, or short story. Paint a picture, create a cross stitch, or a cartoon on your favorite topic. Engage with Astronomy through the arts (Usually about +2 but this is strongly dependent on the time spent on the project)
- Write an opinion blog on some modern controversy in Astronomy (+1) – examples include the naming of the **James Webb Space Telescope (https://www.npr.org/2021/09/30/1041707730/shadowed-by-controversy-nasa-wont-rename-new-space-telescope)**, the placement of telescopes on **Mauna Kea or other native lands (https://www.npr.org/2022/07/31/1114314076/hawaii-mauna-kea-telescope-space-observatory)**, the placement of **thousands of Star Link satellites (https://www.space.com/astronomers-night-sky-protection-starlink-megaconstellations)** in the night sky, etc. (+1)
- Create a practice quiz or study guide to be shared with other students before an assessment (+1)
- And many other ways outlined on the **Extra Credit Opportunities file (https://canvas.its.virginia.edu/courses/150948/pages/extra-credit-information)** in the Resources tab of the course site. If you think of other ways of engaging with the material outside that aren't listed in extra credit file, reach out to the instructor to see if they may count for extra credit.

## Honor Code and Policy on AI Use in Class

Honor Code:

I take UVA's honor policy very seriously for my classes and expect that same respect from all my students. By creating an atmosphere of mutual respect and fairness, we can allow learning to flourish. Even when not explicitly stated, students are expected to adhere to the official UVA honor code and just a standard human ethics code of conduct. ***Put very simply, if you would not freely and openly share with your instructor the route/materials you are using to arrive at your answer for any course assignment, it's likely that you are committing some violation.*** I encourage you to reach out to me

with any questions you have about our course honor code - I am very open to discussion about integrity across all classes.

Adhering to the honor policy is also a group endeavor. If you see or know of someone violating the policy I strongly encourage you to chat with them about that and strongly discourage them against it. If we let standards of society falter, then those that are most insincere will get more ahead. Additionally, if cheating is not discouraged (and we turn a blind eye to it) then that is, in effect, requiring our community to cheat for fear of falling behind. This is the main reason why I emphasize the honor policy as strongly as I do. Know that the student run honor code strongly encourages student's to reach out to the committee if they are aware of any violations.

To be even more open and honest, I have and will continue to report honor violations when I discover them. I don't enjoy doing this but find that it is vital part of my role as course instructor. Again, this policy is not to create an atmosphere of fear, but to allow you to know that by taking my class honestly and fairly, your merit will determine how you do in the course. **And if you do take the course honestly and fairly, and take advantage of all the sources for learning that I've created, I am confident that you will be able to excel.**

If a honor violation is discovered, it is up to the discretion of the instructor whether other course policies offered in good faith will be altered for that student. For example, it is likely that for honor violations a student's lowest HW/lab will no longer dropped as students will likely get (at minimum) a zero for the assignment where the honor policy was violated.

<u>Assignment Policy:</u>
For HW and labs you are welcome (and encouraged) to collaborate with other students in the course but you must arrive at your own answer (i.e. you can discuss how to approach a problem but not simply share what answer you got). You are also welcome to use personal notes, course notes, lecture PDFs, lecture recordings, supplemental course material on Canvas, and the course textbook when completing HW (i.e. anything available on the current semester course Canvas site). You are also welcome (and encouraged) to discuss any assignment problems you're struggling with with the instructor in office hours (or before/after class). Additionally, you may use researched materials outside of the course to help you better understand the process/approaches/background for assignments but you cannot use those materials to simply get an answer.

It can be a violation of the honor policy to use non-course materials to work on any HW or lab assignments (you will be doing outside research if you complete the final project). Honor violations include (but are not limited to): googling answers (or using AI as noted below), copying off another student, using problem answers posted anywhere, using past course material, etc. When in doubt consider the statement above: ***if you would not freely and openly share with your instructor the route/materials you are using to arrive at your answer for any course assignment, it's likely that you are committing some violation.***

AI Policy:

The use of AI tools, such as Chat-GPT, google AI, or other large language models, is prohibited in this class for homework, in-class questions, labs, and extra credit unless permission is explicitly granted by the professor in an online written form.

As for final projects, AI tools can be used in the beginning stages of idea generation (such as helping with brainstorming or generating initial outlines), but its use must be explicitly described in those submissions (e.g. what prompts were used to generate ideas and how did you build upon those ideas?). In this sense, AI can serve as a great ***tool*** for generating ideas, but should not be where creativity and critical thinking ends. AI tools cannot be used in written submissions(in other words, all written content must be your own).

When crafting written work, students are encouraged to use software such as Google Docs or Microsoft docs with edit and version history saved to create peace of mind that work will not be incorrectly flagged as AI generated. The instructor is well aware of false positives/negatives on AI checkers and version history is the simplest approach around this.

**In all instances of confusion on whether or not AI use is allowed, please reach out to the instructor.**

**Note**: I am open to suggestions on ways to implement Chat-GPT and other LLMs into components of the class in way that still adheres to the overall goals of the class. I recognize that it's likely that AI tools, like Chat-GPT, will continue to play a larger role in the process of learning. If you have suggestions for implementation of AI tools, that is still in the spirit of learning at a college level and enhances learning (rather than replacing learning), please reach out to the instructor to start a dialog.

## Course Calendar

See the **class schedule page (https://canvas.its.virginia.edu/courses/150948/pages/class-schedule)** posted to the modules tab of the course site for a schedule that includes: the list of lecture topics, suggested readings, assessment dates, and supplemental material. Additionally, I will be recording every lecture and posting links to those recordings in the class schedule file. There is an additional page on the course site that includes an **assignment schedule (https://canvas.its.virginia.edu/courses/150948/pages/assignment-schedule)** to help with planning your semester.

## Personal Support

*Special Accommodations:* Please email me or visit me during office hours if you have any special circumstances that might affect your attendance, participation, and/or comfort during the course (e.g., an access issue, involvement in religious observances, or special familial or other responsibilities). I will treat any information you provide as private. If you think you may have learning or accessibility issues that needs further assistance, I've included the link to the **Student Disability Access Center at UVA (https://www.studenthealth.virginia.edu/sdac)** .

*Office Hours*: I very, very, very strongly encourage you to take advantage of my office hours. I am available to help with understanding concepts, completing assignments, discussing a topic you are particularly interested in, or anything else. If the posted office hours do not work, please separately email me so that we could schedule a time that works.

If you need even more additional help, astronomy graduate students are occasionally available as tutors (for a fee). You can contact me about setting something up with one of them.

*Mental Health Resources*: As a student, you may experience challenges that negatively affect your learning, such as anxiety, depression, interpersonal or sexual violence, difficulty with eating or sleeping, grief/loss, and alcohol or drug problems. This has been especially prevalent since the onset of the pandemic. The University of Virginia offers several confidential services that you might find helpful for addressing such challenges, including **Counseling & Psychological Services (CAPS) (https://sites.studenthealth.virginia.edu/CAPS)** and other **on-grounds and off-grounds resources (https://eocr.virginia.edu/chart-confidential-resources)**. I also encourage you to reach out to me, if you feel comfortable, and we will work together to make sure you are successful in this class regardless of what life throws at you.

*Confidentiality*: For concerns involving interpersonal violence or self-harm, I am classified as a "**responsible employee (https://uvapolicy.virginia.edu/glossary-terms/responsible-employee)**," which means that I am ***required*** to report issues of violence to the University.

Consider these additional resources that are confidential:

- **Just Report It (JRI) (https://justreportit.virginia.edu/)** – sexual and gender-based harassment and violence, bias and discrimination/harassment/hazing, interference with speech rights, youth protection
- **Confidential employees (https://eocr.virginia.edu/confidential-employees-and-confidential-resources)** are available if you want to discuss an issue related to violence in-depth, but want it to remain confidential

**I'd like to finally note that my primary goal of this class is to excite you about the wonders of the Universe. With each lecture I will continue to adapt to best reach that goal. If, at any point in this semester, an unexpected situation (personal or otherwise) arises that is blocking that goal and causing adverse effects on your life or academic performance, please reach out so that we can find the best path forward.**

# Class Schedule

**Direct link to daily course schedule page (https://canvas.its.virginia.edu/courses/150948/pages/class-schedule)**

# Assignment Schedule

**Direct link to assignment schedule including homework and labs**
**(https://canvas.its.virginia.edu/courses/150948/pages/assignment-schedule)**