ASTR 12610 1, PHSC 12610 1 - Black Holes - Instructor(s): Richard G Kron

Project Title: **College Course Feedback - Winter 2024**

Number Enrolled: **54**
Number of Responses: **23**

Report Comments

Opinions expressed in these evaluations are those of students enrolled in the specific course and do not represent the University.

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What are the most important things that you learned in this course? Please reflect on the knowledge and skills you gained.

Comments
The various ways that knowledge of stars and physics all led to the need to acknowledge black holes and their existence.
I learned how to pay attention to detailed guides on how to perform step–by–step processes in astronomical analysis.
All about black holes. This class was really cool.
Class is structured around proving the existence of black holes, using physics and historical context. I appreciated the more accessible lens through which we studied, and feel like I was more willing and excited to engage with the content due to the more relaxed learning system.
Learned about all kinds of stars, building to black holes
Throughout this course, I learned about many different topics in astrophysics related to black holes. For example, I learned about the precession of the orbit of Mercury, the deflection of light by the mass of the Sun, gravitational redshift, the existence of black holes, gravitational waves, and gravitational wave dilation. There were other interesting theories such as general relativity, quantum gravity, and black hole thermodynamics.
I learned about Black Holes and how they interact with and impact the universe around them.
Black Holes, Gravity, Tidal Waves, types of death of stars.
Black holes
Black holes, general relativity, history of astronomy and research into black holes
I believe that the most important thing I learned was being able to use ds9 in order to analyse images from space. Also, I learned a lot about the nature of black holes and all their properties. Lastly, my lab report writing skills improved and I used tools that I had never used before in the labs.
The most important things that I learned in this course is the skills needed to operate Stone Edge Observatory, take photos of stars, analyze the stars in DS9, a software, and look for specific patterns and qualities in the picture.
I learned about how black holes work and other related topics in astrophysics.
I suppose I learned a lot about black holes, which is good since it was the point of the course. The favorite thing I learned was that black holes evaporate eventually because they emit radiation that draws power from their spin, but eventually the spin stops and the radiation starts to draw power from inside the holes instead, so then they disappear over time.
How to use various astronomy/astronomy–adjacent sites (honestly the most important skill for this course).

Describe how aspects of this course (lectures, discussions, labs, assignments, etc.) contributed to your learning.

Comments
The readings and lectures were super engaging. Labs were ok, I guess.
labs and assignments were both well–designed and guided me through the difficult material that they tackled.
The lectures are not at all connected to the homework, BUT they are super interesting. I loved the textbook for this course—it's probably my favorite I've ever read.
Weekly readings from "Black Holes and Time Warps: Einstein's Outrageous Legacy" were at times lengthy but interesting and not too science or math–heavy expositions of topics related to labs and lectures. As a creative writing major, I enjoyed the opportunity to devote so much time to non–fiction reading – the book was genuinely interesting and quite well written. Weekly 'Astronomy Analysis Projects' familiarized me with different technology that I believe is industry–standard and encouraged exploration which was fun and exciting! Labs continued that exploration, through experiment–based opportunities to engage with smaller–scale examples of the topics we were studying (ex: using the wave box to measure wavelengths instead of ones from space). SEO project in the end of the quarter was so fun and I'm glad to have the tool at my continued disposal. Lectures were interesting and relevant, bridging the gaps in the different elements of the course. I also really appreciated having a different painting or art piece to engage with. Recognizing astronomy as a centuries–old practice that we get the honor of participating in makes me happy!
Lectures were informative for homework and labs
Class lectures somewhat contributed to my learning, as some topics covered in lecture appeared again during labs, weekly readings, and weekly projects. The weekly assignments (readings and projects) were the most helpful in contributing to my learning, as they provided great information on the concepts. However, the lab sections were the least helpful for me, as they sometimes felt disconnected from the lecture material.
Labs and homework give you a practical grounding for the lectures. Lectures are good if you're able to really focus.
Labs, Assignments and office hours did a lot more to help understand the concept while the lecture was very good at presenting the conceptual material.
Lectures and labs
The lectures were great. I really liked the projects – they were fun to do! Labs were tedious, unclear, and not related to what we were learning.
just go to lab and youll be fine all the slides are uploaded on canvas and they have the hw instructions. lectures are useless unless you really wanna learn. if you just wanna pass skip them as there are no exams at all.
I believe that labs helped with our learning because we were able to see how the concepts we studied in class played out in a minor scale. Also, astronomy analysis homework improved my ds9 skills tremendously and were honestly pretty fun.
The professor explained how to complete the homework in lectures which was helpful.
The labs specifically contributed to my learning my encouraging me to collaborate with other effectively, solve astronomical problems together, and analyze the candidacy of each galaxy for having black holes in them.
The labs and lectures were most useful, and the assignments helped me apply material from lecture.
My favorite part of the course was the weekly analysis assignments. They were fun and challenging, and since my major is not one in which I interact with math and science a lot, I really appreciated the opportunity to do physics that wasn't.... soul–sucking, like I've heard some STEM major courses can be.
All equally helpful.

Please respond to the following:

	Mean	Median	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
This course challenged me intellectually.	3.81	4.00	0.00%	9.52%	23.81%	42.86%	23.81%
I understood the purpose of this course and what I was expected to gain from it.	4.29	4.00	0.00%	0.00%	0.00%	71.43%	28.57%
I understood the standards for success on assignments.	4.43	4.00	0.00%	0.00%	4.76%	47.62%	47.62%
Class time enhanced my ability to succeed in graded assignments.	3.90	4.00	0.00%	14.29%	4.76%	57.14%	23.81%
I received feedback on my performance that helped me improve my subsequent work.	4.14	4.00	0.00%	0.00%	19.05%	47.62%	33.33%
My work was evaluated fairly.	4.43	4.00	0.00%	0.00%	4.76%	47.62%	47.62%
I felt respected in this class.	4.62	5.00	0.00%	0.00%	0.00%	38.10%	61.90%
Overall, this was an excellent course.	4.19	4.00	0.00%	4.76%	14.29%	38.10%	42.86%

Additional comments about the course:

Comments
v easy no tests quizzes projects or finals. only labs, a weely reading (which is a lot but youll learn which parts to skim as you go) and a fairly easy weekly pset.
Not at this moment.
I felt a lot of the time like the course was trying to be something it wasn't. It's supposed to be on black holes, and even before taking the class I had reservations about whether there would be enough relevant course material to cover the length of the quarter. There wasn't, really. I felt like most of the lectures were very stretched out to have a small amount of material cover an hour and a half, and there were a lot of parts of the lecture added in that didn't feel super relevant. I understand that it's a core curriculum course, and I really like the fact that it therefore tries to cover a lot of bases. However, as cool as the class concept was, I'm not sure that black holes are the appropriate theme for a core course considering how stretched the material we received was.   Also, the reading, while not the most engaging course material I've ever read, was pretty hilarious in places, especially in the prologue. There were just a few turns of phrase and things that I found very humorous.

I would recommend this course to:

	No	Yes
Highly-motivated and well-prepared students	0.00%	100.00%
Anyone interested in the topic	4.76%	95.24%

Thinking about your time in the class, what aspect of the instructor's teaching contributed most to your learning?

Comments
Loved his clear passion! Also gave 5 minute breaks during the lecture, which were greatly appreciated. He knows how to teach effectively! One of my favorite lecturers so far.
lecture descriptions of projects
I liked when he would draw diagrams on the board, and I found his examples with real astronomical objects super cool.
I appreciate how Professor Kron was available outside of class, especially during the beginning of the quarter when some of the weekly projects were more difficult for me, as I was adjusting to the course's organization. I also appreciated how he answered my peers' questions during lecture, which helped deepen my understanding of the concepts.
He cares a lot and engages a lot with questions
Demos of homework assignments that revolved around use of databases and software. Also, demos of simulations of phenomena were helpful as well as drawings done on the chalkboard.
His enthusiasm
Professor Kron is great! He is very passionate about the subject and cares about his students. He was also very clear with expectations on each assignment, which was appreciated.
I think office hours and discussions after class
Instructor's detailed explanation of the quantitative elements behind different galaxies enhanced my learning.
the astronomy analysis projects were actually interesting and fun
The informative lectures contributed most to my learning since we covered a broad range of topics.
I appreciated his vibes a lot. I know that doesn't mean that much, but it made me feel welcome, and that was nice.

What could the instructor modify to help you learn more?

Comments
More engagement in class
It could be helpful to provide a bit more structure during the lectures so that the ideas flow together well, but other than this the lecture style was good.
He could outline the progression of the lecture clearly before class so that students know how it's going to pan out or the bigger picture of what we're learning that day.
more interactive lectures since it is a small class
Nothing
I think make class a little more engaging
I think the instructor is doing everything fantastically.
The instructor could provide more real world examples of the theory.
Honestly, while in the moment it was nice to not have tests, in retrospect that probably would have helped with my retention of material.

The Instructor . . .

	Mean	Median	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	N/A
Organized the course clearly.	4.45	4.50	0.00%	0.00%	4.55%	45.45%	50.00%	0.00%
Presented lectures that enhanced your understanding.	4.27	4.00	0.00%	4.55%	9.09%	40.91%	45.45%	0.00%
Facilitated discussions that were engaging and useful.	3.95	4.00	0.00%	4.55%	27.27%	27.27%	31.82%	9.09%
Stimulated your interest in the core ideas of the course.	4.27	4.00	0.00%	0.00%	9.09%	54.55%	36.36%	0.00%
Challenged you to learn.	4.18	4.00	0.00%	0.00%	13.64%	54.55%	31.82%	0.00%
Helped you gain significant learning from the course content.	4.10	4.00	0.00%	9.52%	4.76%	52.38%	33.33%	0.00%
Was available and helpful outside of class.	4.59	5.00	0.00%	0.00%	0.00%	40.91%	59.09%	0.00%
Motivated you to think independently.	4.29	4.00	0.00%	0.00%	9.52%	52.38%	38.10%	0.00%
Worked to create an inclusive and welcoming learning environment.	4.45	4.00	0.00%	0.00%	0.00%	52.38%	42.86%	4.76%
Overall, this instructor made a significant contribution to your learning.	4.32	4.00	0.00%	0.00%	13.64%	40.91%	45.45%	0.00%

Please include the name of the TA/CA/Intern you are evaluating. What aspects of the TA's teaching contributed most to your learning? What could the TA modify to help you learn more? Please include any additional feedback for the TA/CA/Intern.

Comments
Tanisha was extremely understanding, clear, engaging, and committed to helping her students work through the labs. I greatly appreciated her efforts to help us throughout.
Saba
Saba
Tanisha
Aidan Simpson. Before lab sessions, Aidan provided a brief overview of the content that we would be covering. However, we were often expected to go through the lab on our own and did not receive much initial guidance. Aidan would help clarify our questions along the way, but it would be helpful if he would check in with us along the way and provide clearer instructions to get started on each lab. It could also help to be more responsive over email in a timely manner.
Tanisha Jhaveri
Saba was great at giving overviews of what the goals of the lab were. Her 5 minute mini–lectures were helpful in understanding the lab and helped us complete the labs faster.
Tanisha. Tanisha was helpful during lab.
Tanisha
Tanisha Jhaveri: she was helpful in lab
Saba
Tanisha
Aiden Simpson. His patient explanations of my questions during the labs contributed most to my learning. The TA could provide more feedback on my homework to help me learn more.
Tanisha, she was really helpful and supportive, especially with lab work
Aidan Simpson is the greatest TA to ever exist! Always there to help with homework questions, help with labs, or answer any physics question about any field.
Saba Razavi ran my lab section and she provided clear instructions to help us do the labs.
My TA was Aidan Simpson. To be honest, I thought he was a pretty ineffective TA. Although I appreciated how, at the beginning of each lab, he would give a short lecture on relevant material for each lab, I think a lot of the time it was already something we'd learned in the lecture. The same thing applied to if I or a lab partner came to him with a question; he wouldn't always answer our question clearly, sometimes he would misunderstand the question and start talking about (again) something we already knew, or wouldn't know the answer himself— even if it was a question about lab instructions. Occasionally he would need to reference his own lab packet, then give his answer, and overall it didn't seem like he was in–tune with the program, or generally knew what he was doing.
Saba was really helpful inside and outside of labs. She also left helpful comments on assignments and other such work. Also, she was just a really sweet and friendly person.

The TA/CA or Intern. . .

|	Mean	Median	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	N/A
Facilitated discussions that supported your learning.	4.13	4.00	0.00%	5.56%	16.67%	27.78%	38.89%	11.11%
Gave you useful feedback on your work.	4.33	4.00	0.00%	0.00%	11.11%	44.44%	44.44%	0.00%
Stimulated your interest in the core ideas of the class.	4.17	4.00	0.00%	5.56%	16.67%	33.33%	44.44%	0.00%
Challenged you to learn.	4.17	4.00	0.00%	0.00%	16.67%	50.00%	33.33%	0.00%
Helped you succeed in the class.	4.44	5.00	0.00%	5.56%	0.00%	38.89%	55.56%	0.00%
Was available and helpful outside of class.	4.18	4.00	0.00%	0.00%	16.67%	44.44%	33.33%	5.56%
Overall, this individual made a significant contribution to your learning.	4.11	4.00	0.00%	5.56%	16.67%	38.89%	38.89%	0.00%

How much did the following elements of the course contribute to your learning gains?

	Mean	Median	No Gain	A Little Gain	Moderate Gain	Good Gain	Great Gain	N/A
Laboratory Experience	3.71	4.00	5.88%	11.76%	17.65%	35.29%	29.41%	0.00%
Field Trips	5.00	5.00	0.00%	0.00%	0.00%	0.00%	7.14%	92.86%
Library Sessions	5.00	5.00	0.00%	0.00%	0.00%	0.00%	7.14%	92.86%
Review Sessions	4.00	4.00	0.00%	0.00%	0.00%	7.14%	0.00%	92.86%
Writing Seminars	4.00	4.00	0.00%	0.00%	0.00%	7.69%	0.00%	92.31%

Other course elements not mentioned above:

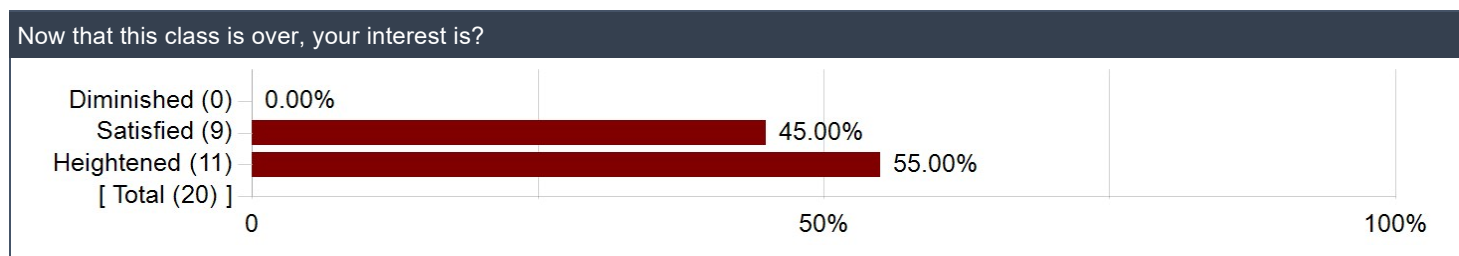| Comments |
|---|
| lab |
| Using Stone Edge Observatory was very fun |
| N/A |
| I just wanted to note that the labs, while interesting, were incredibly disorganized, and it wasn't just the TA. The lab manuals were unclear and for almost every lab, we were explicitly told to *not* do the experiment as was dictated in the lab manual. Considering that my TA wasn't especially great at explaining things, that made a lot of labs much, *much* more grueling than they needed to be. Maybe this is not the place to go into this particular peeve, but I do find it ironic that we are graded on clarity of our lab work when the lab manuals themselves are so unclear. |

Is this class a requirement of some sort?
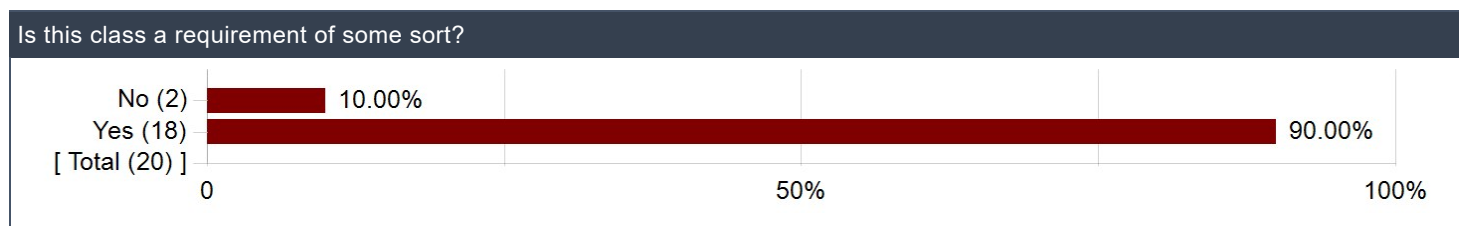
Is this class a requirement of some sort?

No (2) — 10.00%
Yes (18) — 90.00%
[Total (20)]

Prior to starting this class, your interest level was?

Prior to starting this class, your interest level was?

Very low (1) — 5.00%
Low (2) — 10.00%
Neutral (7) — 35.00%
High (9) — 45.00%
Very high (1) — 5.00%
[Total (20)]

Now that this class is over, your interest is?

Now that this class is over, your interest is?

Diminished (0) — 0.00%
Satisfied (9) — 45.00%
Heightened (11) — 55.00%
[Total (20)]
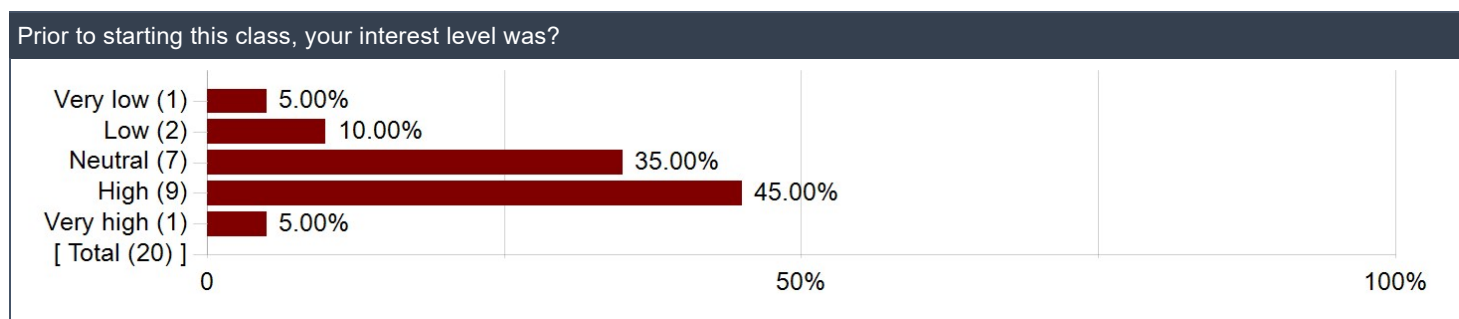
Why did you choose to take this course? (Select all that apply)
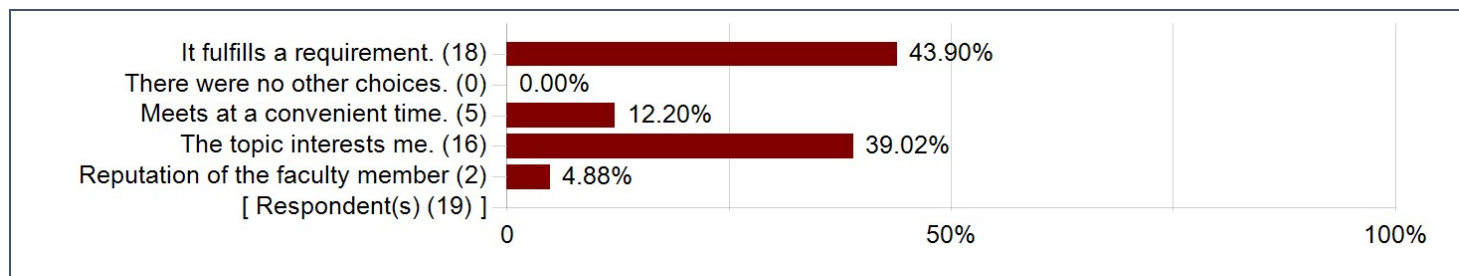
It fulfills a requirement. (18)	43.90%
There were no other choices. (0)	0.00%
Meets at a convenient time. (5)	12.20%
The topic interests me. (16)	39.02%
Reputation of the faculty member (2)	4.88%
[Respondent(s) (19)]	

How many hours per week outside of attending required sessions did you spend on this course?

How many hours per week outside of attending required sessions did you spend on this course?

<5 hours (8)	38.10%
5-10 hours (10)	47.62%
10-15 hours (1)	4.76%
15-20 hours (2)	9.52%
20-25 hours (0)	0.00%
25-30 hours (0)	0.00%
>30 hours (0)	0.00%
[Total (21)]	

What proportion of classes did you attend?

What proportion of classes did you attend?

None (0)	0.00%
25% (0)	0.00%
50% (1)	5.00%
75% (9)	45.00%
All (10)	50.00%
[Total (20)]	
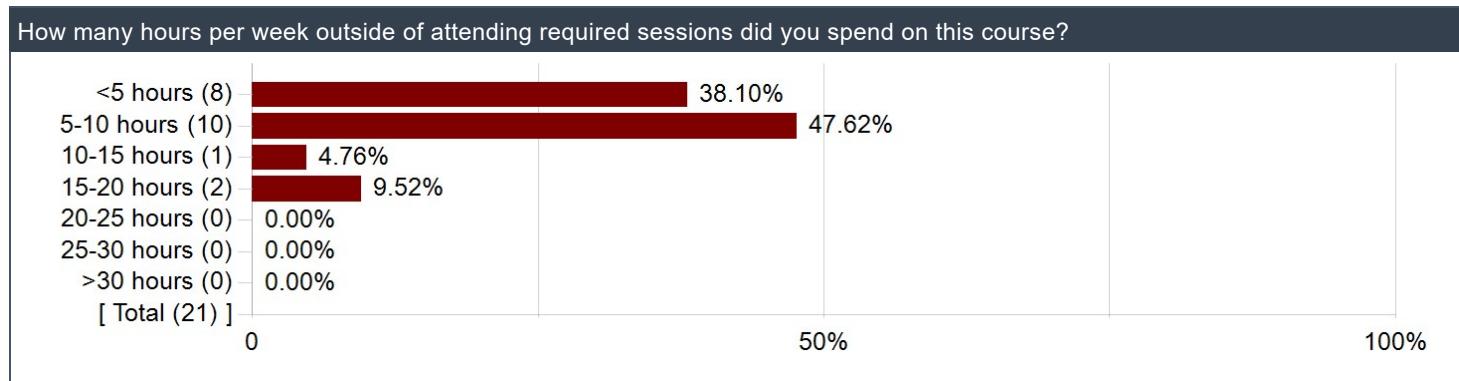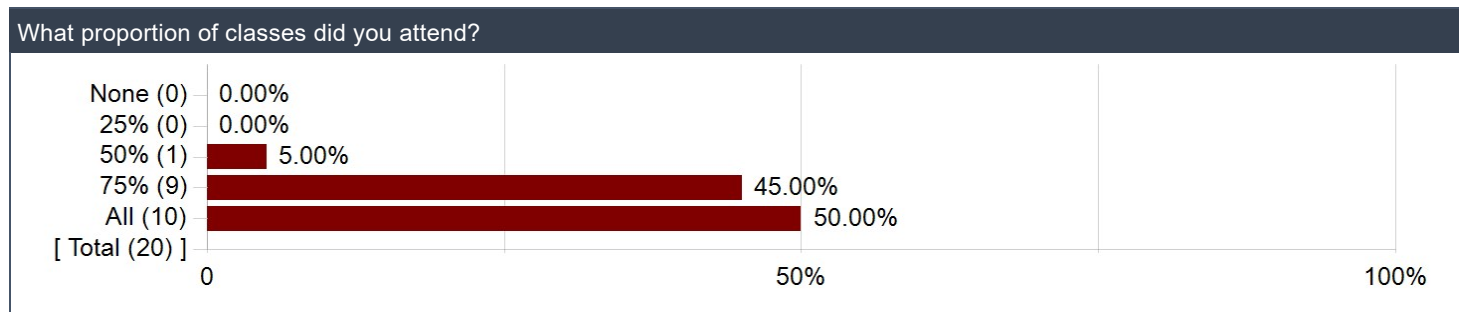
Please comment on the level of difficulty of the course relative to your background and experience.

Comments
Not super difficult, you just have to pay really close attention to the instructions for using the software needed to accomplish the projects assigned.
medium
Super easy, super chill, super interesting
This class was at a somewhat adequate level of difficulty given my limited prior experience in astrophysics, though the calculations expected from us during the labs were oftentimes challenging.
It's not so difficult
It was pretty easy having taken the prerequisite classes.
easyyyyy
Very doable with limited experience
Manageable if you put in the work
The level of difficulty is moderate relative to my background. It do need significant amount of calculations.
It was appropriately difficult for someone like me who is not heavily experienced in sciences.
The course was not difficult overall; the labs and analysis assignments were challenging in a good way, though. There weren't any tests and there wasn't any final, save for another weekly analysis and reading pair.
Fun, chill class.