Course Final Survey

12 responses

1) Course Curriculum:

What did you like best about the Environmental Data Science course?

12 responses

I liked to learn about pandas.

Learning how to answer my own questions in python. We may not know all of python but we know where to look.

I really liked learning a new skill in Python. I am glad that I was able to learn how to code and use such a valuable skill.

Learning how to code using python and discovering different uses

I really enjoyed the instruction of this course, as well as the course material. I appreciated the lecture style, as well as the use of lecture/example problems.

I liked seeing the future of data management of engineering and the various tools utilized.

That Python makes long tasks much quicker.

What I like the most about this course is how I learned that python can do more things and have way more variety of packages than R.

This class was overall very enjoyable, and i enjoyed most the content on xarray because of the power and utility of accessing nc files and their relevance to my field of study.

Nothing.

I enjoyed learning about so many different packages in Python

Interaction with the content! Being able to follow along on Notebooks

2) Course Curriculum:

What did you like least about the Environmental Data Science course?

12 responses

There weren't any pre-requirements for this course and it is an advanced course. There should be more basic programming classes in order to take this course.

Some elements of python are not intuitive

I wish that we had gotten through more material, and I wish it was a little more interactive. I also wish that things were a little more organized, like with a study guide in Microsoft Word as opposed to being on Jupyter/Discord/GitHub because I am not as familiar with those platforms and they were hard to access and study and make my own.

the trial and error in trying to code

I wish there was more time to work on our final projects/more time in class. I appreciated that the last HW was removed to permit more time to dedicate to the project.

I disliked how slow some of the lessons were.

Running into error after error when working with codes.

The only thing I liked the least is how hard python can be with very complex code.

The least enjoyable aspect of the course was the first few lessons on python basics, which went quite slow and could have been studied more efficiently at home.

Everything.

I feel like it was hard to cram all into one semester, it would be nice to break it up into two.

The fact that we had a final project and final exam

3) Course Curriculum:

Considering a 15-week course duration, students dedicate approximately:

1. Introduction to environmental data science (2 lessons)
2. Python basics (3 lessons)
3. Python programming (4 lessons)
4. Pandas (5 lessons)
5. AI coding assistance (1 lesson)
6. Data science workflow (1 lesson)
7. NumPy (3 lessons)
8. Matplotlib (3 lessons)
9. Xarray and CartoPy (3 lessons)
10. Google Earth Engine with GeeMap API (planned but not covered)
11. Machine learning (planned but not covered)
12. Project presentation (2 lessons)

Considering the time allocations and the content importance, how would you recommend adding, removing, merging, or extending some topics based on your experience.

12 responses

This is a good organization for the course. I would not change it.

I think it moved pretty well

I do not think Xarray was very helpful, so I would have removed that. I have found with my project I am using scipy a lot of statistical analysis, so I wish we could have covered that in this course. The introduction could have been accomplished in 1 lesson likely. I wish this course was over two semesters so we could have covered everything and a few things like Pandas, NumPy and Matplotlib in more depth.

I think the course moved at a good pace but I do wish there was more time allotted to learn about google earth

I would suggest less on Pandas, and more time allotted towards the special topics (Machine learning and GeeMap API).

I would shorten the panda lesson and python programming lesson by one lesson each to shit another subject in there.

It moved well.

I would say extend class hours in general for subjects like Matplotlib, Xarray, Numpy, and Pandas so we could cover more topics in the future.

I feel that a lesson just on AI coding assistance is not entirely necessary, especially because much of the utility of having an integrated AI API key in the jupyter notebook can be replicate by simplying accessing ChatGPT, Copilot, or any other LLM online. Additionally, it may be worth reducing the lessons on Matplotlib and instead teaching it alongside other lessons.

None.

I wish we were able to dive into Machine Learning

More time to work on Individual Project with professor guidance. Maybe about 2 classes allocated for that. AI coding assistance maybe removed or merged with another class.

4) Course Curriculum:

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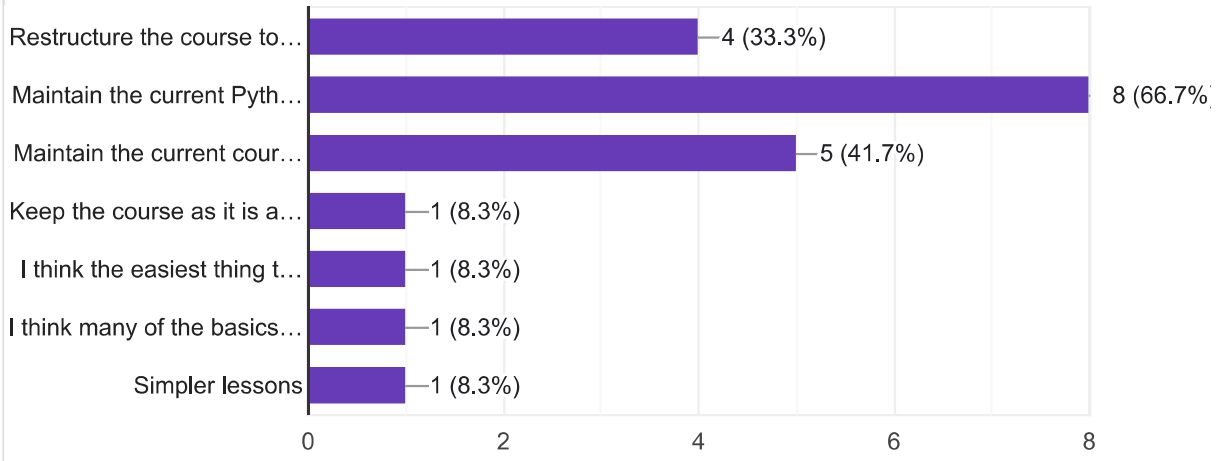
Given the course schedule and the importance of adapting to emerging trends in environmental data science such as machine learning and Google Earth engine, which option do you find most suitable for enhancing the curriculum?

12 responses



5) Course Curriculum:

What are other thing(s) you would prefer/like to change about the way the course has been taught? What would you like the instructor to do differently? Additional comments/concerns/suggestions/compliments, etc.

10 responses

The instructor should stick to basics

Keeping troubleshooting until after class and only going over elementary topics one time

I would love for the course to be more interactive. Maybe if the course was smaller, this would be easier, but I understand that a lot of students want to take this course. As wonderful as Python is, I wish we also had a course specific to R, since I feel that is being used more widely especially for ecological studies. Maybe if we could have a lecture day and then a workshop day where we spend half the class walking through how to do a code and the second half working with a partner to try to apply it to a case study.

I think more should be taught on the steps to troubleshoot the code with respect to the more common errors

I think how the instructor teaches the class is perfectly fine and shouldn't be changed.

I would prefer if the lecture was more hands-on.

Only for the class hours to be 2 hour long, or one hour long if it is a MWF class.

The instructors enthusiasm is very welcomed, and helps convey the importance of data science skills and programming. I would prefer a more self-learning focused class for the basics of learning packages and the basics of python in general, and more advanced topics/case studies to be covered in class.

Simpler lessons.

Structured lessons. Levture at beginning, exercise in the middle, questions at the end.

6) AI Coding Assistance:

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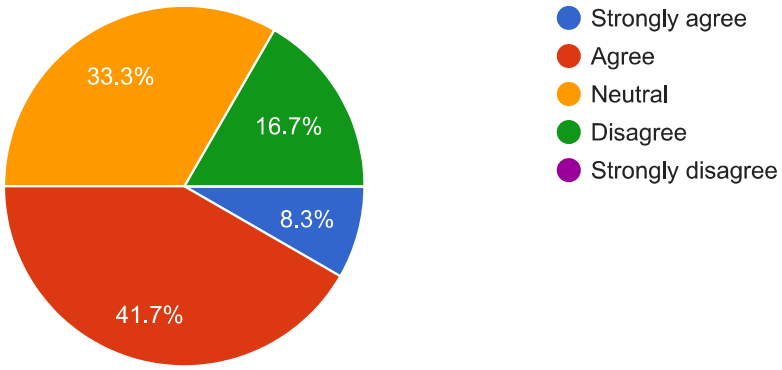
When I solve an environmental data science problem, I heavily rely on AI?

12 responses



7) AI Coding Assistance:

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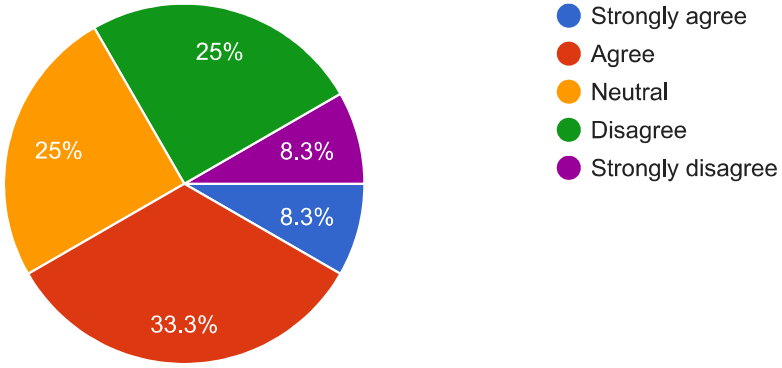
After I study a topic in this course and feel that I understand it, I have difficulty solving problems on the same topic.

12 responses



8) AI Coding Assistance:

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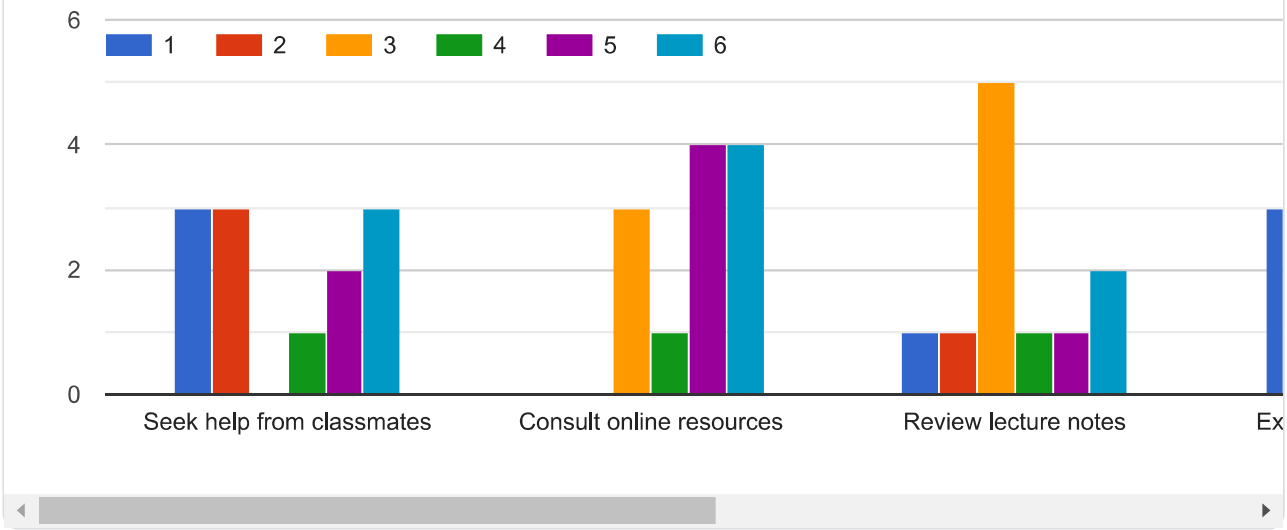
When I get stuck on an environmental data science problem, rank how you seek help in order:



9) AI Coding Assistance:

How has the integration of AI coding assistance, such as Jupyter AI or ChatGPt, impacted your learning experience in the course, both positively and negatively?

12 responses

It was good to me! I like having a back up help when I can not resolver problems.

I believe it helps me solve problems and makes the class seem more helpful, instead of learning to past a test we are actually learning to solve problems.

I used ChatGPT a lot in this course. I am disappointed that Jupyter AI did not work as well for me. I feel like while I am using ChatGPT I am not learning as much as I could, so I wish I had a stronger foundation without it instead of heavily relying on it.

The use of LLM has been helpful but also lackluster as sometimes the LLM model is not structured to assist with certain things that I would need to be fixed.

It has helped a lot, I actually think more time allotted to AI coding assistance would have been an efficient use of time and would allow for less time to be focused on Pandas/NumPy/Xarray

AI coding assistance has helped me build the skeleton of my project and assisted me during homework problems.

It has allowed me to understand topics without seeking assistance first.

Negatively, it does not really help me much when I am learning extremely hard codes, and the AI give me complicated results, but the rest is positive for basic simple code.

It has positively impacted learning by helping me diagnose errors when other resources, such as stack exchange and github forums, are unclear.

Helped.

It helped me dive into the errors and understand why I was getting them and how to fix them.

Jupiter AI was unhelpful because it did not work. chatgpt was slightly helpful but it would be bad if i became too reliant on it

10) AI coding Assistance:

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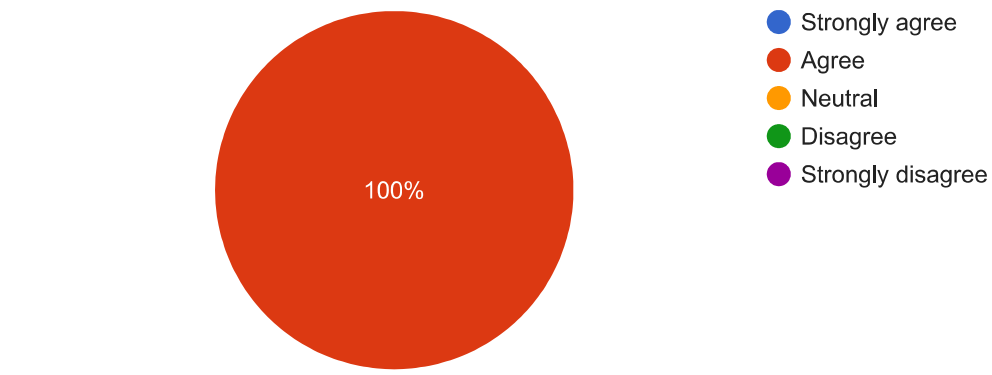
We use this statement to discard the surveys of people who are not reading the questions. Please select "Agree" for this question to preserve your answers.

12 responses



11) Pedagogical Approach:

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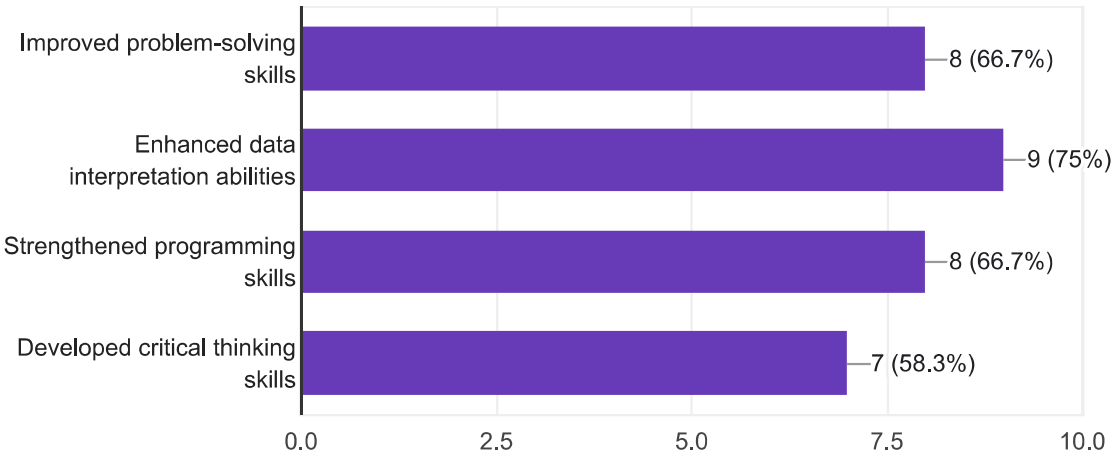
In what ways do you feel project-based learning has contributed to your skill development in environmental data analysis?

12 responses



12) Pedagogical Approach:

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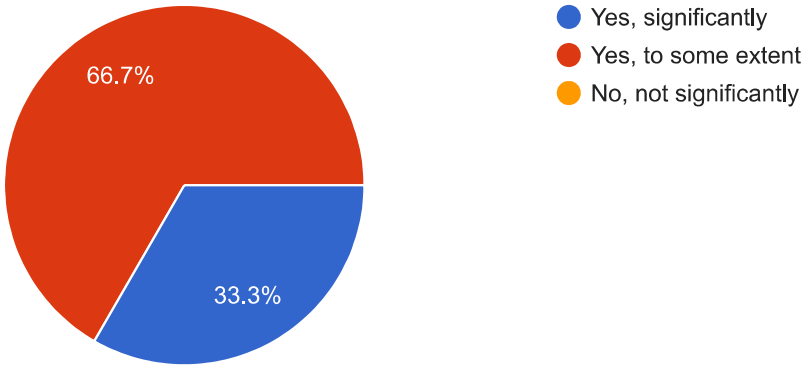
Did the project-based learning approach encourage you to actively engage with the course material outside of class?

12 responses



13) Pedagogical Approach:

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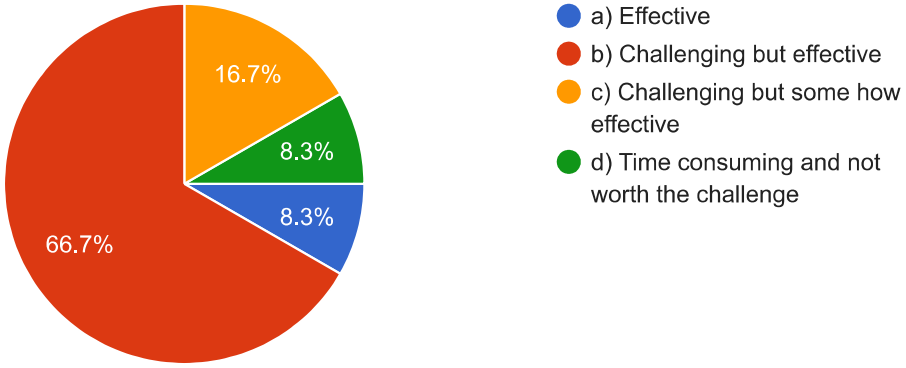
How effective did you find the self-directed learning opportunities, such as selecting your dataset for homework and choosing your project topic, provided in this course?

12 responses



14) Pedagogical Approach:

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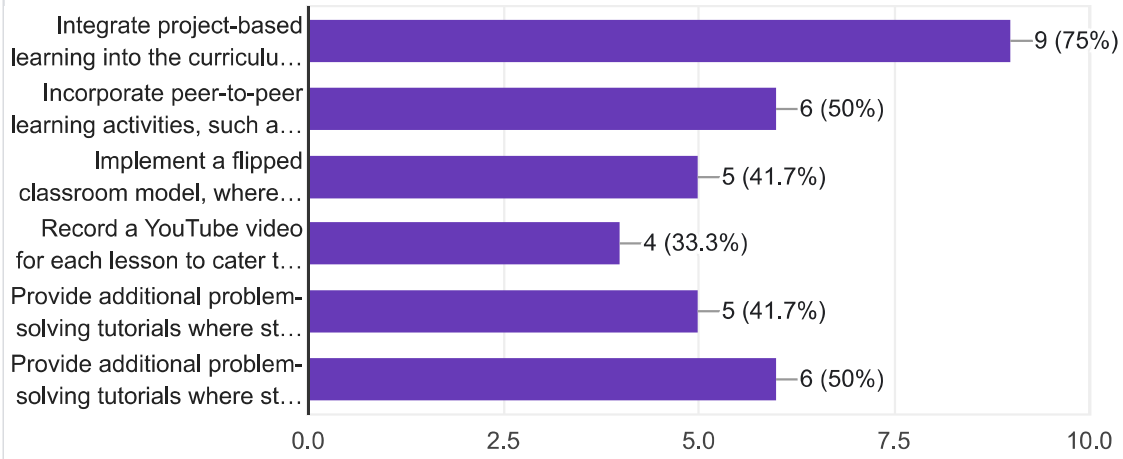
How would you recommend adjusting the pedagogical approach to optimize student learning outcomes? Select all that you found or will be useful:

12 responses



15) Pedagogical Approach:

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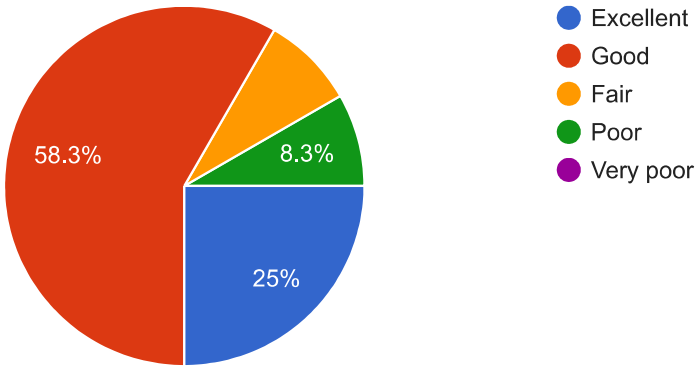
Overall, how would you rate your learning experience in this Environmental Data Science course?

12 responses



16) Learning Outcomes:

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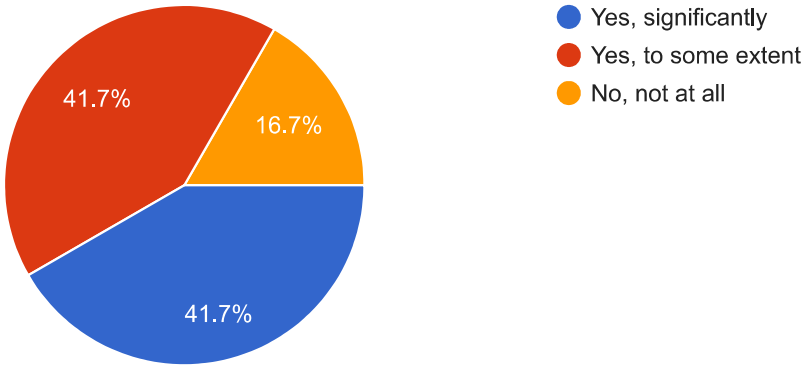
Has this course enhanced your interest in pursuing further studies or research in water and environmental data analysis?

12 responses



17) Learing Outcome:

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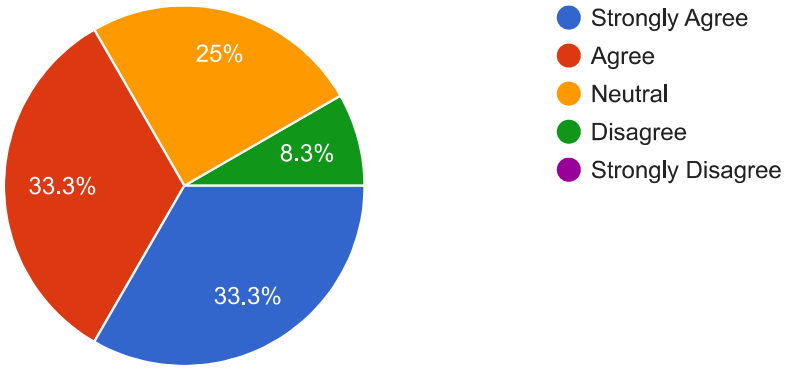
I enjoy solving water and environmental data analysis problems

12 responses



18) Learning Outcome:

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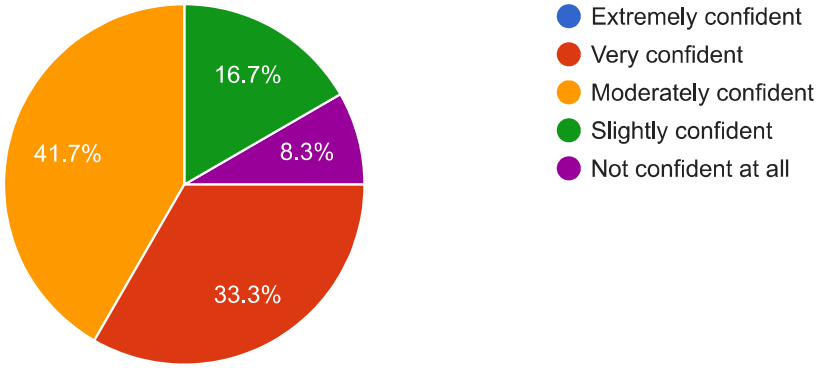
How confident are you in your ability to apply Python-based tools for water and environmental data analysis after completing this course?

12 responses



19) Course Usefulness:

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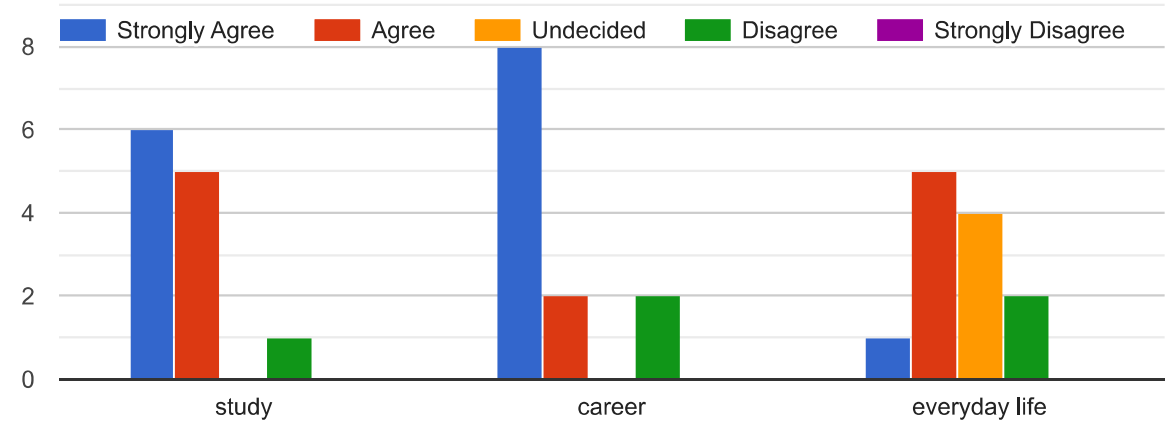
The technical skills, reasoning and computational thinking skills, and knowledge presented in this course can be helpful to my



20) Course Usefulness:

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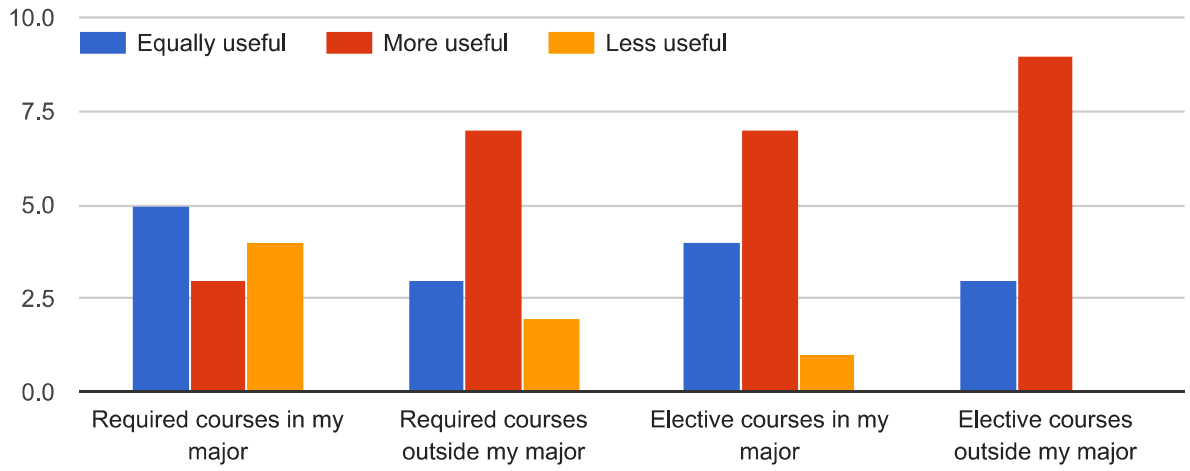
Please rate the usefulness of this course compared to other types of courses you've taken, considering the following categories.



21) Course Usefulness:

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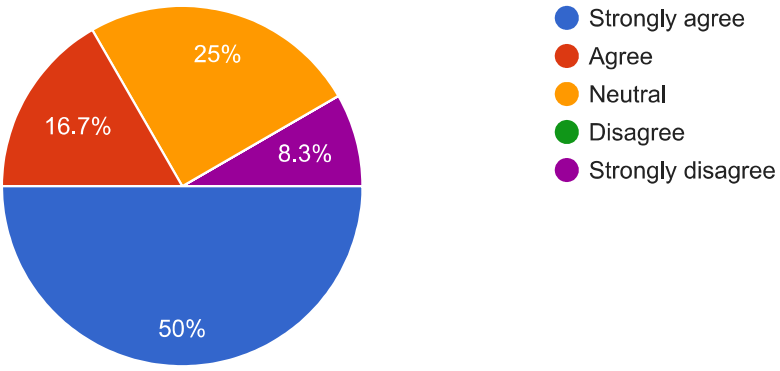
I am interested in learning more about environmental data science

12 responses



22) Course Usefulness:

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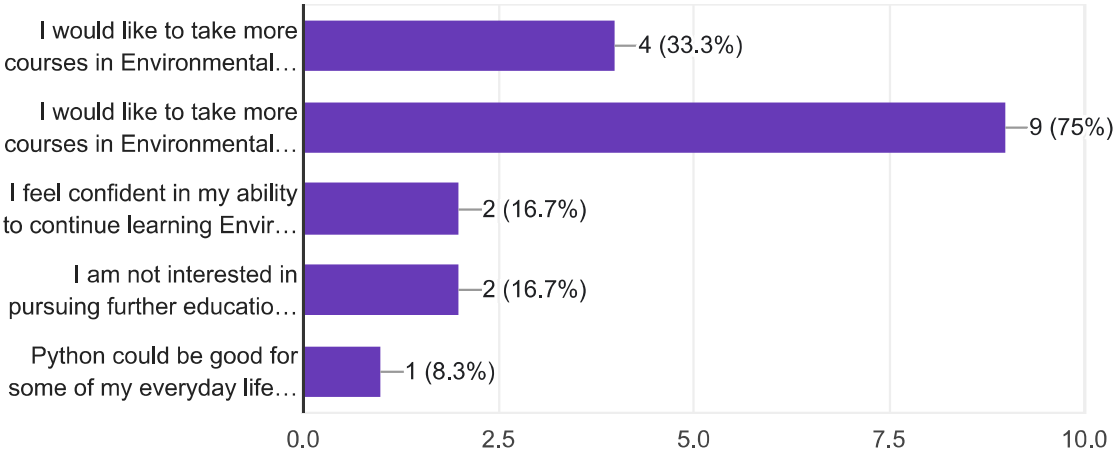
Select all that apply

12 responses



23) General:

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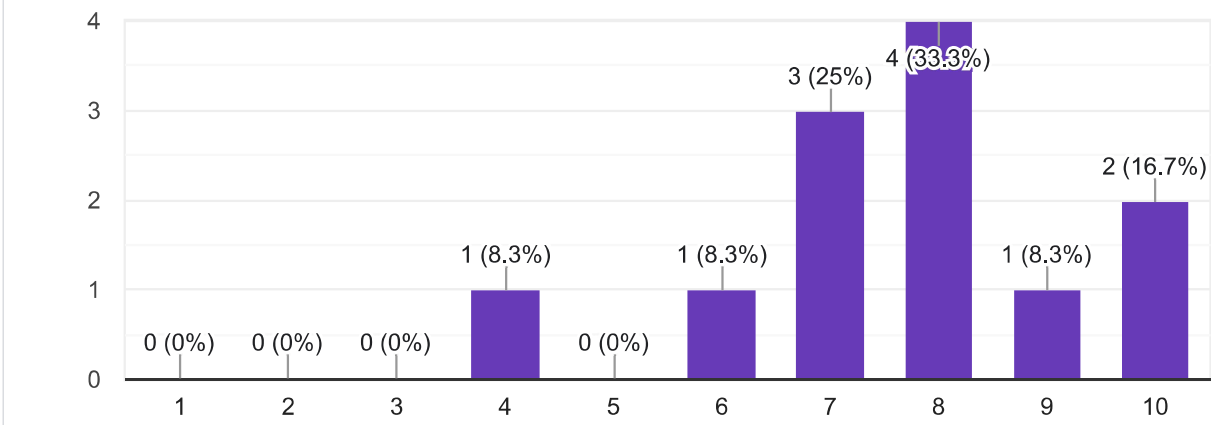
Rate your overall experience

12 responses



24) General:

Is there any additional feedback or comments you would like to share?

10 responses

N/A

n/a

I am very grateful that I had the opportunity to take this course. I hope that more courses like this will be offered again before I graduate in Spring 2025 - I would definitely take advantage of them. I wish there was something like this directly in the Water School so I did not have to search outside of my major to find it, and I am extremely grateful that Dr. Elshall reached out to the Water School faculty to tell them about this course.

This course was extremely informative and will be very useful for my future career goals. I wish there was more time to cover all of the course content.

For the project, formatting guidelines should be posted along with the rubric on what will be graded.

The course was interesting.

So far, this class is pretty interesting. I personally think, this course should be two hours so not only the professor can teaches us more things, but also possible that if the lesson is done before class time ends, students can work on the exercises while can spend more time and can ask the professor for help, in which, in my opinion, could help students understand python more.

I enjoyed the course overall and I hope for it to become more advertised/encouraged in the future. These kinds of tools are how a lot of high level research is conducted and is very beneficial to learn prior to graduate study.

None.

25) General:

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What is your program ?

12 responses