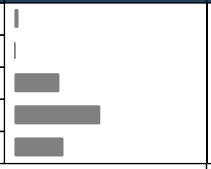
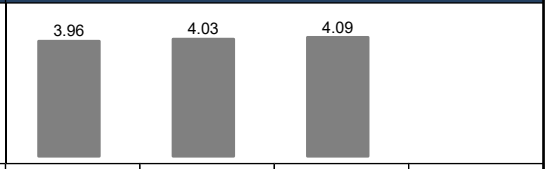
Duke University - Course Evaluations
Graduate Course Evaluations - Spring 2024

Course: IDS-701-01: UNIFYING DATA SCIENCE.IDS-701-01.
Instructor: Nicholas Eubank *
Response Rate: 46/54 (85.19 %)

1 - Your personal level of engagement with the course was:

Response Option	Weight	Frequency	Percent
Very low	(1)	1	2.22%
Low	(2)	0	0.00%
Medium	(3)	11	24.44%
High	(4)	21	46.67%
Very high	(5)	12	26.67%





Response Rate	Mean	STD	Median	Dept/Program (GRAD)	Mean	STD	Median	GRAD Overall	Mean	STD	Median
45/54 (83.33%)	3.96	0.85	4.00	154	4.03	0.84	4.00	2511	4.09	0.88	4.00

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2 - What knowledge, methods, skills, insights, or ways of thinking did you develop in this course? Please describe three specific things you learned.

Response Rate	42/54 (77.78%)

• Honestly I'm not sure. I feel like I learned nothing

• - learning to properly articulate a problem - learning to listen to a client in order to properly understand what they want/require - proper interpretation of results

• AB testing, Asking the questions, learning the stakeholder's needs

• I was able to develop skills on utilizing real world dataset to accomplish tasks set by a potential stakeholder.

• Causal Inference, A/B Testing, and ATE

• In this course, I developed a comprehensive understanding of several key aspects critical to the role of a data scientist in the future: 1. Understanding the Role of Data Scientists: I learned about the roles data scientists play and how to approach problems when starting out as a data scientist. This foundational knowledge is crucial for effectively initiating and managing projects within the field. 2. Causal Inference: I gained a solid understanding of causal inference, which is fundamental for analyzing the cause-and-effect relationships in data. This insight is particularly important when faced with the need to apply statistical methods to real-world problems. 3. Professional Reading and Mindset for Future Challenges: The extensive reading materials helped me become accustomed to professional research papers, encouraging a systematic approach to learning. They also helped me reflect on the mindset required for a data scientist looking to tackle future challenges. Furthermore, through exercises and projects focused on causal inference, I learned how to frame and solve problems using causal inference methods, which deepened my ability to think critically about applying these techniques in practice.

• I learned basic concepts in causal inference, experimental design, and critical thinking.

• 1. Potential outcomes framework. 2. AB testing. 3. Violations of internal and external validity assumptions. (4. PyGAM)

• Casual inference, A/B testing, python

• 1. Stakeholder management 2. Exploratory questions 3. Casual questions

• None

• Critical thinking skill, teamwork, statistical skill

• I understand how to frame and tackle a problem in a systematic way along with A/B testing and causal inference.

• I learned that there are a lot of qualitative aspects to working with data, and this course was amazing in contextualising that

• Causal question analysis, data science pipeline, potential outcomes framework

• Think about big picture. How to problem solve. Hoow approach and organize data projects in a different way

• 1. The distinction of the different types of Data Science problems that will be asked (Exploratory, Passive Prediction, Casual). I mentally have always meshed them together, so having an idea of how to distinct them is great. 2. External and Internal Validity. Learning about it in hindsight makes complete sense of the issues that face answering any type of problem, but having them spelt out so I can consciously think about them is important. 3. A/B Testing. Being able to do practice exercises through A/B testing, a term with no prior knowledge, was incredible.

• skills other than just programming. data science is to answer the questions that are to the best interest of stakeholders.

• I have learned about A/B testing, how to approach a data analysis problem, and how to analyze the potential outcomes

• We learned about the philosophy of answering questions with data scienc, different types of questions and methods associated with those questions, and ways to ensure fidelity in our outputs while navigating the frequently messy facets of this field.

• I think that before I believed I was supposed to simply supposed to listen to the supervisor or what the team wants delivered and nothing more. But, rather we should help our stakeholders learn more about their problem, help define the scope more, and potentially come up with suggestions. Helps to make use better data scientists.

• 1. General concept of how to conduct data analysis. 2. Consideration of being a data scientist. 3. What might not work if we don't follow the methodology.

• Professor Eubank gave us insight on how to become a better data scientist. To clarify, he helped us understand how to pose good questions that approaches a stakeholder's problem, understand how to build experiments with potential outcomes in mind, and finally how to run different casual studies.

• Teamwork and communtication., Answering questions: explortory, causal, etc, interpretable ML, Potential Outcomes, AB testing, regression/matching/diff in diff

• The non-technical aspects of data science that were reflected were very helpful and novel to me. I also enjoyed exploring causal inference in an interested tandem of numerical and philosophical.

• What a real data scientist does, dealing with all the things that are not in the mainstream conversations. Asking the tough questions and translating the problems. We saw, causal questions and the techniques around it.

• 1. Potencial outcomes framework 2. Ask stakeholder questions 3. AA test

• The Focus of the course has been critical thinking. The content of the course have been and will be great for me to reflect my actions and thinking around solving any problem with data science tools or code. One thing I took personally is that stakeholders are always not right, use your thinking and exploratory analysis to get to understand that the problem space and use that knowledge to plan subsequent tasks and thinking.

• This class fits in the gap that other technical classes leave, on the roadmap to becoming a data scientist. Specifically, this class encourages critical thinking, and invoked arguments to truly question why we do what we do.

• This course allowed me to know how to ask the right questions, especially it being clarifying to understand what the stakeholders need out of projects. Also it helped when i was taking interviews to ask the right questions and always understand the problem space.

• -How important is it to do a proper A/B testing -How exploratory questions are designed to really understand the problem instead of just doing EDA. -Understanding how there are internal and external portions of an experiment.

• - Critical thinking - Problem solving - Teamworking

• In this course, I developed a way to think about how to approach data science problems through different frameworks. One particular set of methods were causal inference methods and potential outcomes framework. We also learned different ways to think about data science problem-solving: through exploratory, passive prediction, and causal questions. The other important thing we learned was, in my opinion, the interpretable ML which was a great addition to the other ML classes we are taking.

• I grew over my primitive understanding of data science, this course is excellent at rounding off everything we don't get to academically cover.

• We mainly focused on casual inference this semester. Instead of lots of coding, we have more time to do the readings and discuss problems that a data scientist going to meet. I love this idea and kind of appreciate this opportunity. Many people in the program focus more on sophisticated technical trends and skills instead of discussing their thoughts and opinions toward some social issues or data issues in the real world. In this case, I learned that a critical mind is still valuable. And way of interpreting the ideas to different audiences is also important.

• In the course, I developed a robust understanding of several key methodologies crucial for data science, especially for technical interviews. Firstly, I learned about causal inference, gaining the ability to distinguish between correlation and causation through statistical models like instrumental variables. Secondly, the course deepened my skills in A/B testing, where I mastered designing experiments and conducting hypothesis testing to validate the impact of different interventions on user behavior. Lastly, I explored matching techniques such as propensity score matching, which are vital for analyzing observational data when randomization isn't feasible.

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• Exploratory questions, stakeholder management, descriptive and prescriptive questions, potential outcome framework, causal questions, a little bit of A/B testing (I guess the only thing comes to my mind that it's important to select OEC and having balanced distribution between features, and avoid spillover).

• This course has equipped me with the crucial skill of solving problems by asking the right questions. Additionally, I have gained insights into A/B testing, the Potential Outcomes Framework, and both internal and external validity. These concepts are essential for effectively unifying data science methodologies and applying them across diverse scenarios to ensure robust and reliable results.

• - Types of Questions and how to answer them - some new models and techniques like PyGam - Causal Analysis

• 1. There can be very evil people in this world like him. He does not care about truth. He does not care about the feeling of the students who trusted him. He likes the feeling of power and controlling others, and pretending everything is going on well even students are suffering. I have to realize people are diverse and there are this kind of people on the world. 2. There are evil people and things but I can do nothing about them. Even though I tried very hard to make peaceful change. It's useless. I have to accept the fact and don't waste my time and energy on bad people. 3. What is indicator variables and how to explain them in statistics.

• Stakeholder Management: I gained insights into identifying, analyzing, and effectively managing stakeholders in various projects or initiatives. Understanding stakeholder needs and expectations allowed me to cultivate stronger relationships and navigate complex project dynamics more effectively. Passive Prediction Questions: I learned the importance of formulating passive prediction questions to explore potential outcomes or scenarios without bias. This method enabled me to approach problem-solving and decision-making with a more objective and analytical mindset, leading to more informed conclusions. Causal Questions: I acquired skills in formulating causal questions to investigate the relationships between variables and identify underlying causes or drivers of specific outcomes. This approach deepened my understanding of causal mechanisms and enhanced my ability to analyze complex systems and phenomena.

• A/B testing and power calculation and potential outcome framework.

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3 - Reflecting on the overall learning environment of this class, in what ways did the instructor(s) and the structure or components of the course facilitate your learning? Are there specific course components or methods of instruction you'd keep for future years?

Response Rate	41/54 (75.93%)

• I haven't been sure what I am supposed to learn, as the course doesn't have a consistent structure, and learning pieces are all over

• oftentimes professors stick to theory in their courses. The fact that Nick implements many exercises allows us to properly apply the lessons being taught. In my opinion, this is crucial

• weekly exercises, really helpful

• There are plenty useful reading sources provided by the professor.

• The course was not very technical but helped people understand how to frame the right questions and how to structure any data related problem statement in the form of a data analytics or data science problem

• The vast amount of reading material provided in this class was instrumental in helping me grasp complex concepts, particularly in understanding causal inference in depth. Moreover, the exercises that involved using real data based on these concepts were extremely beneficial. They allowed me to immediately practice applying theoretical knowledge to practical situations. These course components—comprehensive reading materials and data-driven exercises—effectively facilitated my learning.

• I think in-class discussion and the "flipped" aspect of the class design is nice. Nick creates an environment that welcomes questions. We can feel that.

• I think the readings were a great way to learn the content of the class. They were all really informative and interesting, so would definitely maintain the readings for future classes as well. The assignments were also really good to dive into the content!

• In-class discussion.

• Team assignments, team projects, and inclass discussion.

• Lectures are meaningless Projects are hard and no enough support is provided

• Nick has been very helpful in guiding us throughout the course, and if we had any request, he tried his best to accommodate.

• The structure of class is clear on how to address real world problems. Nick answers questions patiently and carefully. The test allows me to review the material throughly.

• assignments were very relevant

• The project is the best part

• The ways the instructor facilitated my learning, and something I truly think was great, was having groups for that class period sit down and work with each other. Then at the end, essentially be told how close/far off the mark we were. Allowing students to force to think about this themselves, and seeing where they went wrong, is fantastic.

• class is pretty engaging and interactive. we get to sit in different groups and work in different pairs most of the time. The structure of course was a bit unclear at the beginning

• The component where we cover the A/B testing

• I liked having discussions during class that were based on the reading. I would strive to make these more focused though. The discussion nature of the class did facilitate an approach to our learning that was tailored to our gaps in understanding which is good.

• The professor is very energetic and always helpful after class for as long as possible. He takes time outside of class to go over topics in great detail until the student understands completely.

• The topics that have been copied are essential.

• Professor Eubank fostered a safe learning environment that let us ask questions. I especially liked his office hours at 9am and him being readily available to talk.

• Some of the assignments were particularly useful and some of the readings as well, especially Nick's e-book/website.

• Nick's patience with our discussions was greatly helpful for things to stick. Exercises were also very helpful and should definitely stay around. Real life examples of discussed topics (like the Zillow example) were both fun and greatly informative.

• It was a well structured course. With all the materials available. TAs and the professor were focused in foster our knowledge.

• The exercises are really interesting.

• The assignments were great and also the in class quizzes. I failed in most of them but gave me an opportunity to reflect on my understanding.

• This is class was in my top 2 classes taken so far. I think it is perfect as is.

• I wish this course had an online component, where online means this is a resource i can tell i will need in industry and it would be a great resource to keep coming back to and have referral notes. But Nick has a great website and resources that helped with the learning experience and i can still access even after the course and program.

• The A/B testing memo

• I really enjoy the lectures written for the class; I believe they provide a fluid and focused way to study the topics. Similarly, I think the assignments fulfill their objective of guiding us through the path to discovering the concepts and content we are reviewing. I feel like this class continues to evolve over time, and I would like more topics to be covered in the course blog/book. For example, power statistics. It would be great to have that reading in the future, as some readings from other authors tend to be more scattered or perhaps don't align with the focus of the course. I believe the team work system, although it causes me social anxiety and I often struggle with the difficulty of debating and working with different people, is part of the learning process, especially for classmates without work experience. Therefore, while it's not my favorite part of the class because it poses the greatest challenge, I think it's a good learning opportunity for future students

• I felt that the overall complementary structure aided my learning: one topic logically led to another which helped build knowledge over time. I will definitely hold on to the memos of A/B tests, potential outcomes framework, and short memos we did as a reflection/summary exercise.

• I think the course structure is pretty comprehensive, I appreciate the setup and the breadth coverage in this course.

• I like jupyter notebook exercise to guide me through the process of applying the knowledge from readings and class. And I found I am doing this right now is much faster than the last semester. So I can see my progress Yeah!

• The course included various interactive components such as group projects, midterm and regular quizzes. These activities were instrumental in reinforcing the learning material. Working in groups allowed for the exchange of ideas and different perspectives, and these projects provided practical experience with the tools and techniques discussed in lectures.

• Readings where the author is Professor himself are clear to understand. Team exercises during the class (not outside the class) are facilitating learning.

• The course featured numerous relevant assignments that reinforced the practical application of the theories taught in class. The solutions and feedback from these assignments will serve as valuable reference points for my future endeavors.

• The in-class discussions were helpful to understand the topics further and also in getting different perspectives from other students and the instructor

• The concepts and intention of the course is good. But the content and delivery is so bad. A total waste of my time and tuition. Just remove this class in the future. I want my money back, and I need compensation for mental injury.

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• The instructor's guidance and the well-structured components of the course significantly facilitated my learning experience. Clear learning objectives provided direction, while interactive elements like quizzes and assignments enhanced engagement. The flexibility of accessing resources at any time and the sense of community through forums were particularly valuable. Retaining these components, along with regular feedback mechanisms and personalized learning paths, would greatly benefit future iterations of the course.

• Very structured and love how professor arrange the topics.

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4 - What might improve the course? Are there specific course components or methods of instruction you'd change for future years? Did anything in particular impede a positive learning environment?

Response Rate	39/54 (72.22%)

• It's a terrible course in general, at least a more structural learning schedule would be helpful.

• i know that ab testing is useful in many branches/work settings but i found that part of the course to be very unmotivating. this semester, most of us had wildly different schedules (and time availability). The pair projects didn't fulfill their goal of having both members work together. In particular, I was paired with peers that had very different coding skills which would've made working together an extremely long and time consuming endeavor

• Maybe some helpful slides

• It might be easier for visual learner if there are slides or other supporting materials presented when discussing a topic.

• Personally, I'm not a fan of the mode of teaching where you teach a new thing and immediately give drawbacks of where it will not work/will be ineligible, which is what happened in a lot of classes in this course. It would be more helpful if you highlight where certain methods or tests WILL work instead of pointing out all the places where it would NOT work.

• While the extensive reading materials were very helpful, I faced difficulties during the midterm exam preparation due to a lack of clarity on which topics to focus on intensively. If this aspect were to be clarified, it would greatly benefit future students. Providing specific guidelines or key areas to concentrate on before exams could improve study efficiency and reduce confusion, enhancing the overall learning experience.

• I would propose that 1. focus on causal inferencing, or statistical inferencing. Save team building materials to capstone and internship experience. 2. A/B testing might be doable for final project. For example, make mock websites and recruit all MIDS students participants. 3. Grant more time for exploratory questions (current-format final project) so students can acquire better dataset. According to the schedule this semester, exploratory questions can be granted 6-8 weeks. This way, students can spend more time both on team project and (bi-)weekly notebook and deliver better results. 4. In assignments, students were asked to do statistical tests (e.g. t-test, chi-square test) that were not explicitly talked about in class. Even if these are seen as pre-requisite of the class (from what I understand, some people in MIDS do not have previous experience in statistical tests), it can be worth walking through these concepts in class/ reading.

• I think having more of the flipped classroom structure would help. While we had time to ask questions, the class often asked extremely specific questions that took away from discussing the readings we had. Also, at times the timing of the assignments and projects didn't align well with other classes which caused problems in learning and stress. However, I think that that was definitely a two way street and the students should all have managed their time better as well. So in terms of what could be changed for future years, I would say: 1. Making sure that the autograder assignments have been tested. 2. Sticking to the class schedule in terms of group projects and other assignments. For this, I would suggest that if any groups are planning on getting their own data, provide enough time before the first group assignment for teams to decide how exactly they want to acquire their data so that all groups can submit their assignment at the same time. 3. Limit group discussions in class to 40 minutes.

• Workloads. It overwhelms us sometimes.

• I think grouping students based on similar background or interested fields can be better choices. Since we need to utilize our domain knowledge for solving questions, random grouping didn't help us find a topic that satisfy everyone in the group and come up with better results.

• Take it out from core course, make it an elective

• Na

• Some potential improvements are more structured and flexibility on exercises and more guidance on long readings. Spending more time in lecturing the reading material, instead of Q&A would be benefitial.

• i dont think there's much

• There is something missing from the structure of the course. I love the content, but the readings with the exercises do not seem to line up. Less class discussion more traditional lecture. Reading quizzes prior to class, with more critical thinking exercises/homeworks.

• I think an improvement of the course is to do more of what was mentioned above. The more students are forced to sit down and come to terms with the material on their own, and then be told what went right/wrong afterwards, is something that would drastically help improve the course.

• I feel like there is a disconnection between uds and last year's stats modelling. It will be nice to have some interactions between two courses. I would recommend the instructors to use more standard presentation materials such as power point, lecture handouts rather than merely writings on the board. The marks were often hard to explicitly see.

• We can have a workshop on how A/B testing has been conducted in the industry. Also, I would expect a more structured way of learning. The current reading is not very structured and not straight to the point. It's hard to fully understand the content. We can probably have Tuesday class to be lecture and Thursday class to be discussion.

• I think these discussions often trended towards answering questions which seemed to take away from the actual discussion of the material. The in class discussions not infrequently became tangentially related the material when I think they could have been more directed. Because of these tangents, while studying for the midterm, I found that there were overarching concept or connected concepts for which I entirely missed the connection. More opportunity to step back and appreciate the whole story of the course (similar to the last day of class) would be good.

• It would be helpful that during finals week if we can focus solely on the final project. I feel fairly overwhelmed doing weekly assignments and final projects. Also, if the bonus assignment was given in beginning of semester so I can spend time working on it earlier on.

• A lot of readings are not very structured and costs a lot of time to disguest in a not very effecient way. The lecture is not very productive either.

• I believe the overall course is good. I would just like to choose my teammates for the final project next time.

• I felt some of the readings were too complicated or not that useful for the topics taught. Nick's website is excellent but I felt that not all of the course themes or objectives are there yet. Also, some assignments were particularly troublesome because of design issues, so they need some tweaking.

• My biggest problem with the course was the fact that it assigns the same groups for the final project as Kyle's class and we get no option in choosing our team. I understand the value of working with teams that you have no control over choosing but making each person work with the same team for two classes for almost two months can be very detrimental and tolling if the team they were assigned to is poor. I didn't have this problem in the fall semester as the team that I was assigned to was highly efficient but this semester I struggled so much because of some of the individuals in my team and the struggle extended through both subjects, almost leading me to an apathetic space where I just can't work with these individuals any more as it is taking a huge toll on my mental health. Please give people some degree of control of who they work with and don't give them the same team as the ML team as that doubles the struggle for people assigned to teams that they are not compatible with.

• maybe, more examples outside social siciences.

• Quizes everyweek is not that helpful as midterm

• Reduce the number of auto-graded assignments.

• It is good.

• N/a

• Have a clear schedule of when each of the assignments should be due and with a written instruction of what is to be delivered (it does not have to be a delivery form, just the instructions) because sometimes instructions are only given verbally in class and it is always useful to have a place to go to corroborate the instructions. Sometimes when the readings are of different chapters in different order it is difficult to follow the logic of what is being talked about.

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• A lot of the course builds upon the content of the previous PDS course. For folks who did not take it a lot of assumptions/requirements weren't clear. Including some previous materials from the PDS course would help me navigate the course better. More comprehensive examples of analysis/analytics cases would have been helpful for the project - I feel like a lot of requirements for the final projects are not very clear. While it provides close to reality experience I feel like helping with understanding the problems better/ being introduced to more causal inference studies would aid the learning and broaden the perspectives students have. For example, a huge part of the course centers on A/B testing, diff-in-diff, and other causal methods. Including more industry cases would provide more context (for example, most companies right now switch to Bayesian/MAB testing which is hardly covered in the course). For the final report - perhaps providing some studies that constitute a good causal inference study/report/research would be aiding more.

• I'd say the flipped classroom aspect, but I understand the challenge in keeping up with the coverage of breadth and so this is not a deal breaker.

• I think it could be better for us to stick to one or two books in general. I mean may require us to read one or two books from the beginning to the end. Because the readings we had always have "we will talk about this in detail in the following chapter", but when we are not required to read, we may have difficulties reading by ourselves because of time limit.

• a slide show would be helpful during lectures, some times the hand writing on whiteboard is kinda hard to read.

• I think along with the exercise, this course could provide some past solutions of similar exercises because often it's extremely difficult to figure out what should be done or what is the purpose we are trying to achieve. Overall it looks like exercises are doable if there are two weeks given for each one, but with heavy support from TAs with direct instruction, not indirect guidance. However, within the time constraints and different teams, it's often difficult to contribute as you really would like to. Again because for the most of the topics you have no idea how it technically looks like, it's tough to assume the purpose of the task and what should be coded there. For example, how we can ask a person to bring an apple, if he was living among the rocks whole life? In order to ask for apple, we could show him the apple first and then ask him deliver that. Most of the readings not written by the Professor could be replaced by other sources since they are complicated and hard to understand.

• The current structure of the course aligns well with its objectives. However, enhancing the mode of delivery with comprehensive handout notes or slides, instead of relying on readings from multiple scattered sources, could significantly improve the learning experience.

• While the assignments are really helpful, they can be a bit more directed or guided, sometimes we end up spending too much time trying to understand the ask rather than solving the actual problem

• The exercises is taking a lot of time and are very confusing. There are always typos and errors. Many readings are written by himself. They have very low quality. Quiz didn't make sense. Course discussion is useless. Students just participate to gain grade, and ask a lot of stupid questions. He did not have knowledge to answer many questions also. Final projects lack of guidance and timeline. The groups are formed not voluntarily, but being assigned and its hard to collaborate. There are three TA, but only one is active and helpful. The other two just sit there playing laptop during classtime.

• The example prfoessor used for explain potential outcome framwork could be improved.

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5 - The course was intellectually stimulating. It made me think in new ways, encouraged me to adopt different points of view, or challenged me to develop new skills.

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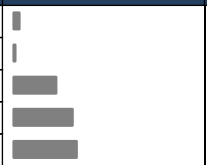
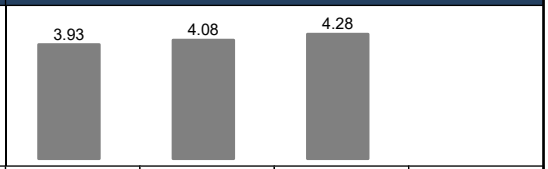
Poor	(1)	2	4.44%
Marginal	(2)	1	2.22%
Average	(3)	11	24.44%
Very Good	(4)	15	33.33%
Excellent	(5)	16	35.56%





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6 - What made this class stimulating or how could it be more intellectually stimulating if it wasn't?

Response Rate	35/54 (64.81%)

• Not sure.

• regarding the final project, i suffered a profound loss of motivation when my team's topic of interest wasn't picked and we had to settle with our third best option. the lessons about listening and understanding client's demands (particularly as they relate to future capstone work) were very valuable. Exercises on messy data and all of those that had the objective of "giving students a sense of the real world beyond academia" are very valuable

• The group discussion

• It would be more intellectually stimulating if every exercise practices we did could be discussed during class time.

• The need to read a substantial amount of papers before each class made this course intellectually stimulating, as failing to do so would make it difficult to follow the pop quizzes and the course content. Additionally, the exercises conducted in every class required a good understanding of the concepts, which encouraged me to preview the material and prepare thoroughly to keep up with the lessons. This structured approach to learning not only enriched my understanding but also kept me actively engaged throughout the course.

• The discussion in class is intellectually stimulating.

• Engaging with the content (either in terms of assignments, group projects, or discussions) made the class very stimulating. For me personally, overall the class the was stimulating because there were a lot of things I had never heard of before so I had a lot to learn but ALSO, coming from a humanities background there was still enough to relate back to and keep things relevant. I'm sure no one will agree however for me, I think it could have been more intellectually stimulating if we had more assignments. Comparing this class to PDS, we didn't have as many assignments or quizzes which made it seem less 'I have to stay on top of it". Having the pressure of in class quizzes might've helped me engage with the readings and content more.

• It encourages people to think in new ways indeed. But I don't see thinking in this way necessary

• Na

• The class introduces new materials in a new perspective. The exercises allow to practice we learn from the reading.

• Interesting content

• The class material and the class take-home exercises were incredibly stimulating and thought provoking.

• many people taking this course have years of work experience. It is nice to ask for help based on their point of view.

• We can have a workshop on how A/B testing has been conducted in the industry. Also, I would expect a more structured way of learning. The current reading is not very structured and not straight to the point. It's hard to fully understand the content. We can probably have Tuesday class to be lecture and Thursday class to be discussion. Nick is very considerate, and very responsive on students' questions. Also, he is open to students' voices.

• Talking about things from a causal perspective is complicated and foreign to me. Not only that but understanding the many assumptions made in modern 'studies' how they are flawed and what that means for the fidelity of the results was critical.

• The professor

• More real business case to analysis in class, instead of intensive reading prior to the class.

• I liked how the exercises help us think through the topics we discussed. I sometimes really didn't like struggling but it did help solidify the concepts.

• The readings prepared by Nick were more engaging than the external readings provided. It would be very nice if Nick's readings can provide coverage for all the important topics through the semester (especially the A/B testing part)

• The professor, how the materials were structured and the topic itself.

• Use more visible teaching tools.

• I can't think of anything at the moment.

• Discussions were very good.

• The paired exercise and group exercises allowed to understand how to solve data and make data-drriven questions in all senses.

• Instead of typing in the board to have previously made slides

• The materials were really stimulating and interesting.

• The reading material is definitely top notch.

• I think we can do more small group discussions and big group discussions in the class or some discussion boards online as assignments.

• applying what we have learnt in real world problems

• It was better balanced in terms of exercises distribution. I have nothing to suggest.

• The practical assignments at the end of each class.

• The in-class discussions made it stimulating

• He didn't explain the concepts well. He made simple concepts very confusing. And he talked about the same thing over and over again. Its extremely hard to learn from him. I self taught the concepts on my own.

• hallenge-based Learning: Introducing complex challenges or projects that require critical thinking and problem-solving could engage learners at a deeper level. Integration of Emerging Technologies: Incorporating emerging technologies or trends relevant to the course material could spark curiosity and exploration among learners. Collaborative Projects: Implementing collaborative projects where learners work together to solve problems encourages teamwork and fosters creativity.

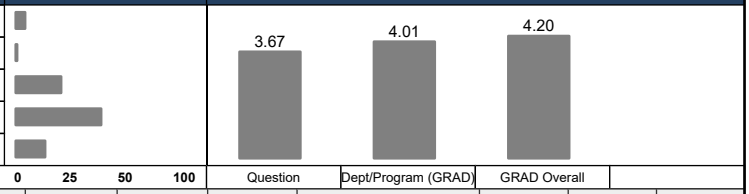
• The examples professor made lead me to search more on the topic to understand it more clearly.

Duke University - Course Evaluations
Graduate Course Evaluations - Spring 2024

Course: IDS-701-01: UNIFYING DATA SCIENCE.IDS-701-01.
Instructor: Nicholas Eubank *
Response Rate: 46/54 (85.19 %)

7 - Considering all components of the course (lectures, discussions, sections/labs, assessments, projects, course environment, etc), overall the course was

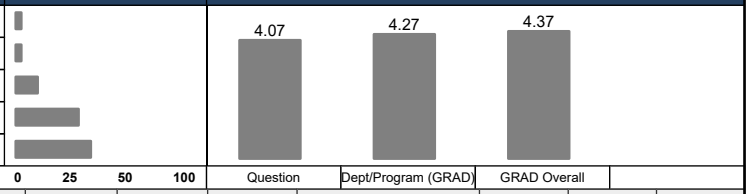
Response Option	Weight	Frequency	Percent
Poor	(1)	3	6.52%
Marginal	(2)	1	2.17%
Average	(3)	12	26.09%
Very Good	(4)	22	47.83%
Excellent	(5)	8	17.39%



Response Rate	Mean	STD	Median	Dept/Program (GRAD)	Mean	STD	Median	GRAD Overall	Mean	STD	Median
46/54 (85.19%)	3.67	1.01	4.00	150	4.01	1.00	4.00	2487	4.20	0.93	4.00

8 - Based on the effectiveness of instruction (clarity, expertise, enthusiasm, rigor, support, inspiration, etc), overall the instructor, Nicholas Eubank, was -

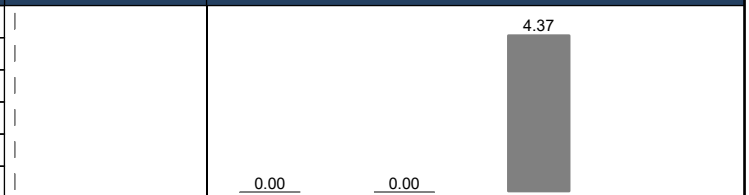
Response Option	Weight	Frequency	Percent
Poor	(1)	2	4.44%
Marginal	(2)	2	4.44%
Average	(3)	6	13.33%
Very Good	(4)	16	35.56%
Excellent	(5)	19	42.22%



Response Rate	Mean	STD	Median	Dept/Program (GRAD)	Mean	STD	Median	GRAD Overall	Mean	STD	Median
45/54 (83.33%)	4.07	1.07	4.00	149	4.27	0.94	5.00	2647	4.37	0.89	5.00

9 - Based on the effectiveness of instruction (clarity, expertise, enthusiasm, rigor, support, inspiration, etc), overall the teaching assistant, , was

Response Option	Weight	Frequency	Percent
Poor	(1)	0	0.00%
Marginal	(2)	0	0.00%
Average	(3)	0	0.00%
Very good	(4)	0	0.00%
Excellent	(5)	0	0.00%
N/A	(0)	0	0.00%



Response Rate	Mean	STD	Median	Dept/Program (GRAD)	Mean	STD	Median	GRAD Overall	Mean	STD	Median
0/54 (0.00%)	0.00	0.00	0.00	0	0.00	0.00	0.00	903	4.37	0.84	5.00

10 - In what ways did the teaching assistant(s) facilitate your learning and what might have helped even more? Include any constructive comments you'd like to share with here.

Response Rate	0/54 (0%)

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Graduate Course Evaluations - Spring 2024

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Instructor: Nicholas Eubank *

Response Rate: 46/54 (85.19 %)

11 - What would you like to say about this course to a student who is considering taking it in the future?

Response Rate	37/54 (68.52%)

- Be prepared for the unstructured assignments and unclear instruction. Highly recommend to not start early on the assignments as instructions could change.
- particularly if you don't have work experience, take this course seriuosly. Otherwise you're in for a crude awakening as soon as you go out to the real world
- Reading the course materials, they are really helpful
- Spending time on the reading is necessary for being able to participate in in-class discussion.
- UDS is highly subjective, and while it may not be as technical or experiment based as other DS courses, it helps you frame the entire problem and close the loop instead of blindly running models without understanding the effects
- This course starts with fundamental questions about data science, focusing on the roles you can play in the field and how to prepare for them. It also provides an in-depth study of causal inference, a technique frequently used in data science, helping you to gain specialized knowledge. If you are considering taking this course, it's an excellent opportunity to deepen your understanding of critical concepts and prepare for a professional career in data science.
- Be prepared to spend quite some time on reading materials and assignments.
- It's a very important course to take because you'll be learning things that most data science programs think is stuff you'll learn on the job. This class provides a safe space to mess around with causal inference before having to do it in your internship, capstone, or job setting. Nick is super open and will be all ears for any doubt you have, may it be content related or how to deal with group work. Lastly, the students that take this class would really benefit from taking PDS in the fall semester.
- Do the readings and make sure devote time into it.
- Go ahead and take it. Then you will know how to become a data scientist.
- You have to If you one lucky, this is not a core anymore then avoid it if you can
- Needs skills in Working with team, proposing solutions and dealing with large amount of homework
- Do the reading and take notes would be helpful in understanding the course material.
- keep attentive during the class as the lectures are good do readings beforehand
- The more work you put in the more you get out
- Please take the material seriously. It compounds, and once you realize its importance, it may be daunting to go back.
- be prepared to lost
- Be prepared with the reading
- I think this course is an imperative compenent of the the core curriculum because it builds a base of understanding that is often lacking in traditional courework. Building a deeper understanding of experimental assumptions and model interpretation is important, and it is a little scary to think that there are many practitioners in this field who likely lack that depth of perspective.
- Super essential to be better at understand the root of data science
- The course is not organized in a a structured way. Be prepared for intensive reading.
- Ask a lot of questions as it helps!
- It might be very different and challenging for people who come from a very technical backgrounds but that is exactly the point, to question and think about impliactions and applications in the DS world.
- It seems a lot of work but its doable and worth it.
- Finish the readings throughly.
- During assigned readings, prepare what to contribute in class and be active, its the only way you will get most.
- Very considerate of student, and has an amazing commitment to student success.
- N/A
- .
- this course definitely is more self-study based, you really have to engage with materials
- It is something that could be very beneficial in the long term.
- Buy the book as Nick suggested. It would be great to read the entire book when you have time.
- Come with an experience of working as a data scientist if you want to take most out of the course.
- This course is essential to bringing it all together as advertised.
- While the course readings and other workload might be on the higher side, it's a very good course and will expose you to the non technical but important side of data science and solving problems in general
- If you have choice, don't take it. But likely this is mandatory and you have to take it. This class and this professor is just disgusting.
- Focus on topics professor brought. If you are English as second language user, don't be sad if you can't understand professor well, you are not the only one, ask your classmate, they will help you

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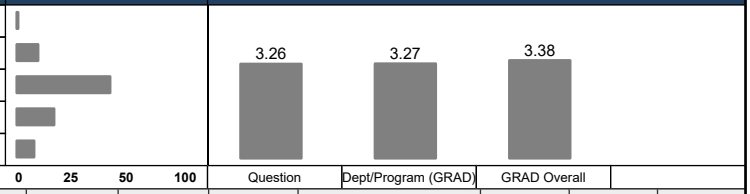
Response Rate: 46/54 (85.19 %)

12 - The course was difficult.

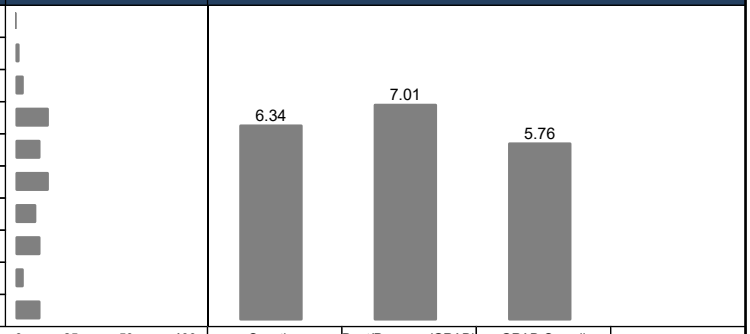
Response Option	Weight	Frequency	Percent
Strongly disagree	(1)	1	2.17%
Disagree	(2)	6	13.04%
Neither agree nor disagree	(3)	24	52.17%
Agree	(4)	10	21.74%
Strongly agree	(5)	5	10.87%



Response Rate	Mean	STD	Median	Dept/Program (GRAD)	Mean	STD	Median	GRAD Overall	Mean	STD	Median
46/54 (85.19%)	3.26	0.91	3.00	152	3.27	0.96	3.00	2489	3.38	1.02	3.00

13 - How many hours in a typical week did you spend on this course (outside of class meetings)?

Response Option	Weight	Frequency	Percent
1	(1)	0	0.00%
2	(2)	1	2.27%
3	(3)	2	4.55%
4	(4)	8	18.18%
5	(5)	6	13.64%
6	(6)	8	18.18%
7	(7)	5	11.36%
8	(8)	6	13.64%
9	(9)	2	4.55%
10+	(10)	6	13.64%



Response Rate	Mean	STD	Median	Dept/Program (GRAD)	Mean	STD	Median	GRAD Overall	Mean	STD	Median
44/54 (81.48%)	6.34	2.21	6.00	149	7.01	2.42	7.00	2483	5.76	2.70	6.00

14 - Would you like to provide any other comments about this course?

Response Rate	17/54 (31.48%)

- No
- None
- No.
- Na
- N/A
- no
- no
- thanks Nick!
- Too much homeworks. Although they are fun.
- Not at the moment
- No
- N/A
- .
- None
- I still love the idea of writing reflections for the readings even though we have chatgpt. We can have a portfolio at the end of the semester.
- NA
- The professor is so disgusting. He did not listen to student feedback for improvement in class. Students tried to be very nice to bring these feedback; we bring our concerns to the class before spring break; but he was very defensive and did not show respect. He manipulated and gaslighted students mentally. Let us do tedious exercise to show his control power. He treated students like we are naughty children who don't follow guidance. The relationship between students and the professor is so toxic. I really trust him in the beginning of the semester. But his behavior let me realize he doesn't deserve it. I felt traumatized from his class. How can we have this kind of insidious people at Duke to be a professor.

Duke University - Course Evaluations
Graduate Course Evaluations - Spring 2024

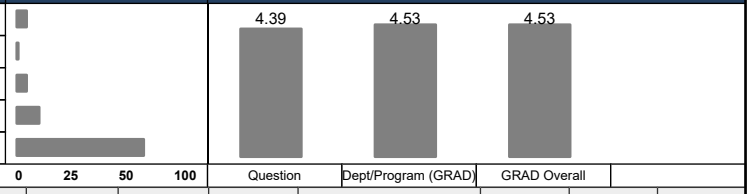
Course: IDS-701-01: UNIFYING DATA SCIENCE.IDS-701-01.

Instructor: Nicholas Eubank *

Response Rate: 46/54 (85.19 %)

15 - The instructor created a classroom space where I felt comfortable contributing and asking questions.1 - Strongly disagree2 - Disagree3 - Neither agree nor disagree4 - Agree5 - Strongly agree

Response Option	Weight	Frequency	Percent	Percent Responses
1	(1)	3	6.82%	
2	(2)	1	2.27%	
3	(3)	3	6.82%	
4	(4)	6	13.64%	
5	(5)	31	70.45%	



Response Rate	Mean	STD	Median	Dept/Program (GRAD)	Mean	STD	Median	GRAD Overall	Mean	STD	Median
44/54 (81.48%)	4.39	1.17	5.00	149	4.53	0.96	5.00	149	4.53	0.96	5.00