



S052

Applied Data Analysis

2018 Spring

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What are the most valuable things you have gained from this course?
Possibilities may range from acquisition of concrete skills or knowledge to changes in perspective or ways of thinking.

Quantitative data analysis skills and the ability to translate findings for a range of audiences.

Learned about many different types of analysis.
Learned how to construct a story during statistics and learned how to tell a story with the data and the analysis.

My statistics skills got improved after this course. The content is really useful for either researchers or data analysts.

I learned about causal inference, prediction, multi-level models, and measurement.

Concrete skills

Tons of data analytic skills. Confidence in stats. This course made me believe in my quantitative abilities again.

I gained a basic proficiency in a very wide range of statistical methods, as well as an ability to effectively critique the statistical methods employed in research.

Data language, data analysis, data skills.

To be exposed to quantitative research and understand some of the decisions that researchers take when analyzing data.

I now have advanced statistical analysis skills and feel comfortable applying the concepts I learned in class to real world research problems. I feel I can apply to data analyst or research assistant positions with confidence.

Real data analytic skills ! Cooooool!

Statistical knowledge both concrete and applied

Desire to learn more about statistics and how it is applied in the education field

An understanding of multiple methods for quantitative analysis of different types of data and for different purposes.

A deeper understanding of data analysis.

I've learnt how to conduct advanced analyses, ranging from survival analysis to logistic regression and PCA.

Oh my gosh...where to start. This course was incredibly challenging and yet I grew tremendously in my understanding of how to approach quantitative analysis for myself. So I gained skills AND confidence and a sense of where/how to decide how to start/approach analysis.

To look back at where I started the term and where I ended is rather remarkable, and I feel proud of my knowledge and skills acquisition. I began with a fuzzy understanding of OLS regression and ended with so many tools in the proverbial kit: OLS with polynomial and interaction terms, transformations, logistic regression, multi-level models, and measurement! Wow! I am by no means an expert, but Andrew's whirlwind of a course really helped me develop a skill set I felt pretty uncertain about going into the course.

I learned how to write about my process and how the decisions I make really affect the outcome of the research.

This course introduced me to a number of methods and has helped me plan out the skills I want to further next year.

Of course stats skill, way beyond S040 level

Essential Data analysis and quant skills for anyone looking into research, policy or evaluation

Being able to understand quantitative research and analysis, reading through academic papers and fundamentally understanding what the researchers are trying to do

I gained a thorough understanding of various statistical techniques. I no longer thing of stats as being scary and foreign!

Logit regressions, multi-level modeling, and survey analysis.

So much skill gained in applied data analysis.

I learned a broad set of applied statistical skills and became sensitive to a similarly broad set of ideas, underlying principles, and questions to pursue later

Ability to analyze data for my own research questions. I did not know that there were so many methods!

Full insight into how to think about regression statistics. Honing language expression around regression.

Greater understanding of data analysis/statistics, new concrete skills

The do files. And Confidence in my ability to learn statistics

I am now a quantitative researcher.

Multilevel modeling, fixed and random effects, reliability, measurement, doing the algebra, GLH tests, LR tests, horse drawn potatoes, how to interpret interactions and quadratics. When to transform and standardize variables. Instrumental variables...lots more I am forgetting.

How to conduct data analysis and interpret it for yourself/others

taste of various analytic methods

Acquisition of quantitative data analysis skills

I learned new statistics topics that I did not even know they existed. I thought that these topics were more for people with a math background, but I understood that they can be useful and applied for many areas.

I learned how to perform data analysis.

I'm not being glib. I had no idea how to conduct quality data analysis before this class. Now I have a clear outline of steps, I know what things to consider, and I know how to get help if my stata code breaks.

This course was amazing.

The most valuable thing I gained from this course was the confidence (and ability!) to attempt statistical analysis on my own. Also, I now understand the complicated quantitative papers assigned in other classes.

1. When to use what statistical approach.
 2. Survival analysis.
 3. Principal Component Analysis.
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Writing about statistics.

Advanced STATA techniques. Multi-level modeling and logistic regression are used constantly in education and are must-knows. This course taught me everything I need to be successful as a researcher/data practitioner.

statistical training

I gained so many concrete skills! Particularly about interpretation and technical skills.

1. Practical analytic skills concerning multivariate OLS regression, logistic regression, multi-level modeling, and measurement. The homework assignments force you to "put into practice" the data analysis skills presented in class.

2. An appreciation for quantitative research and all of its complexity

Technical Skills. Too many technical skills. I hope I remember them. I hope I know when to use them.

Not only did this course give me important skills for statistical analysis, but it also gave me a great deal of confidence in my quantitative analytical abilities.

3 examples of what I've gained from this class:

1. A better conceptual (intuitive and professional) understanding of what basic methods, designs, and analyses there are in the context of research, and applied policy research.
2. The ability to conduct basic data analysis via Stata: to ask a question, explore data and curate evidence to support an answer to that question.
3. A better understanding of the research "industry" - position requirements, expectations, procedures, etc.

Ability to understand complex statistical methods and how to use STATA

I learned a lot of new statistical techniques and methods for analysis, and have a better conceptual understanding of statistics as well as how to apply them in analysis. I can already see applying these methods in my research, and have a better understanding of what I still need to learn and which classes I should take in the future.

Knowledge and understanding of a broad range of statistical analysis necessary for continuing to work in the field of education research, and an understanding that we've only begun to scratch the surface of what is out there!

Deepened knowledge of GLMs and introduced to mlm and measurement

Quantitative analysis skills

I have gained technical skills (eg in multiple regression, survival analysis, multilevel models) but I have also gained a new level of respect for statistics and increased my confidence in this field. As Andrew says, you should "Know", "Do" and "Be" statistics.

everything

acquisition of skills, for sure

Survival analysis, interpreting logistic regression coefficients, testing OLS assumptions if they hold, and many other data analysis tools.

The ability to critically engage with statistical methods in the consumption of research.

Advanced multiple regression; Multilevel modeling; Causal impact assessment

More broadly, I am far more confident in my abilities as a quantitative analyst AND in my capacity to keep learning

Most importantly, I have gained the confidence to conduct statistical analysis - both the thought process and the techniques. In addition to acquiring a breadth of specific skills, I now know how to think about approaching questions that I may not currently have the skillset for.

If you follow the class carefully and go over materials at least twice outside class, you will definitely come out with a solid understanding of data analysis.

Technical Skills, working on STATA, applying Data Analytic skills to specific research questions

Various multilevel and applied data analysis beyond S040 class materials. Also how to interpret statistics further.

Advanced data analysis and statistical modeling skills! Multilevel modeling, hazard probability models, survival analysis, the list goes on...So many key skills that I will use in my future career.

- 1) Confidence in my ability to conduct deeply analytical, data analysis focused tasks.
 - 2) A strong understanding of intermediate level statistics
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Data analysis skills and understanding.

Intuition for multi-level models

So much statistics and a whole new way of looking at life.

Statistic is difficult for me but my professor Andrew can explain it very well and explain it in a very simple way. I like his patience and understanding. It hugely influenced my perception about education school and role of an excellent educator.

Being able to take the statistical results and write it up in a way that paints the full picture of what is going on, rather than just interpreting individual statistics without understanding how they all relate to each other to answer the research question.

Applied data analysis skills I can use for a lifetime in real world application

Concrete data analysis skills that are transferrable to a career.

The most valuable things I gained from this course are a sophisticated and marketable set of data analysis skills, as well as a higher level of understanding about the entire process of data analysis.

Where to begin! A huge amount of concrete statistical knowledge is imparted, such that one feels well-prepared for undertaking a quantitative role somewhere.

Concrete skills in data analysis: logistic regression, survival analysis, principal components analysis, interactions etc.

- Concrete skills of statistical analysis
 - Bank of incredible resources (Stata code, DAMs and model answers; Powerpoints) that I will quite possibly use forever!
 - Understanding of how statistical analysis is used in the social sciences. As a former classroom teacher, I now understand how statistical analysis impacted my classroom through testing and policy.
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Please indicate the extent to which you would agree with the following statements. If there is a question for which you do not know the answer or that is not applicable to this course, indicate NA.

	1 – Not at All	2	3	4	5 – Very Much	NA	Total
Content							
A - Course was intellectually challenging	0% (0)	0% (0)	1% (1)	12% (10)	87% (72)	0% (0)	100% (83)
B - Course stimulated me to think in new ways	0% (0)	0% (0)	5% (4)	13% (11)	82% (68)	0% (0)	100% (83)
C - Diversity issues related to course content were well addressed	0% (0)	10% (8)	11% (9)	20% (17)	39% (32)	20% (17)	100% (83)
D - Course helped me understand how to apply my learning to real problems and contexts	0% (0)	0% (0)	2% (2)	19% (16)	78% (65)	0% (0)	100% (83)
Organization							
E - Course objectives were clearly stated	0% (0)	1% (1)	2% (2)	10% (8)	87% (72)	0% (0)	100% (83)
F - Course content was clearly aligned with stated objectives	0% (0)	1% (1)	4% (3)	12% (10)	83% (69)	0% (0)	100% (83)
G - Syllabus was clear, well organized and complete	0% (0)	2% (2)	5% (4)	18% (15)	75% (62)	0% (0)	100% (83)

Please consider specific course activities and materials (lectures, case studies, readings, written assignments, etc.). Please evaluate each item carefully and independently. If there is a question for which you do not know the answer or that is not applicable to this course, indicate NA.

	1 – None of the Time	2	3	4	5 – All of the Time	NA	Total
A - Course activities were aligned with the syllabus	0% (0)	0% (0)	5% (4)	13% (11)	82% (68)	0% (0)	100% (83)
B - Class lectures clarified the subject material	0% (0)	4% (3)	5% (4)	22% (18)	70% (58)	0% (0)	100% (83)
C - Class discussions enhanced the understanding of the subject material	0% (0)	10% (8)	5% (4)	22% (18)	59% (49)	5% (4)	100% (83)
D - Assigned readings were valuable and of high quality	1% (1)	5% (4)	7% (6)	12% (10)	35% (29)	40% (33)	100% (83)
E - Class lectures and discussions were related to assigned reading	1% (1)	4% (3)	0% (0)	10% (8)	47% (39)	39% (32)	100% (83)
F - Assignments supported and reinforced the goals of the course	0% (0)	0% (0)	1% (1)	7% (6)	92% (76)	0% (0)	100% (83)
G - Assignments promoted learning and growth	0% (0)	0% (0)	1% (1)	11% (9)	88% (73)	0% (0)	100% (83)
H - Technology was used to:							
* Illustrate and deepen understanding of subject matter	0% (0)	1% (1)	0% (0)	16% (13)	83% (69)	0% (0)	100% (83)
* Enable discussions outside of class	0% (0)	1% (1)	4% (3)	12% (10)	82% (68)	1% (1)	100% (83)
* Facilitate communication between students and instructors	0% (0)	0% (0)	1% (1)	18% (15)	81% (67)	0% (0)	100% (83)
I - Course provided effective opportunities to learn from other students	0% (0)	0% (0)	5% (4)	14% (12)	81% (67)	0% (0)	100% (83)

What specific course activities or materials (lectures, case studies, readings, written assignments, group projects, class discussions, etc.) did you find MOST valuable? Why?

lecture slides and stata code

The DAMs are the heart of this course. The lectures were extremely well organized and executed, but working through the DAMs was the most valuable part in that they made me put the lecture content into practice and context. The partner and group work necessary to fulfill the DAMs was one of the highlights of my year. Learning from students who intuitively understood statistical analysis was crucial to my getting through the course!

DAMs - applying the data analysis concepts made me more confident in my data analysis skills and made my learning concrete.

The assignments are extremely high quality. They are challenging but designed to really spur growth and development.

The DAMs were particularly helpful and well-written to help me (and my partner) dive deeper into the material, and highlight the most important parts of each topic. I also particularly appreciated any sort of visual demonstration to explain a concept, anything from an Excel file to the potato technology.

The DAMs and being able to collaborate with partners. AND section with Eddie. AND the learning checks in class.

The lectures, homeworks, and class discussions were all very valuable because they all taught us new concepts and reinforced them.

DAMs were valuable in applying concepts. Lecture slides were second most helpful (although way too dense).

section, quiz and group project

Group assignments, meeting with Andrew, and watching Eddie's sections.

Logit and multi level modeling as these are applicable to my research

Assignments were directly related to the material and were beneficial in making sure we had a good understanding of the key concepts. Group work was highly productive. Sections were useful and worthwhile.

Lectures and section

written assignments (DAMs) were most helpful to understand the concepts from the class, although there was confusion in the absence of model language

Written assignments - because they were a learning process in itself. solving assignments clarified a lot of concepts and pushed me to think harder.

Section and lecture videos

The lectures and the assignments proved to be a powerful combination to facilitate learning in this class - first passively soaking in the information, then actively applying it to practice.

The first unit, survival analysis unit, and multilevel modeling units were the most thoroughly, effectively taught learning cycles of the course.

On top of that, the assignments were very useful in exploring the core skills. The creators (presumably Andrew and co?) thought creatively about how to reveal lessons and prompt discovery on our part. DAM3, in particular, was one of the best discovery experiences I've had doing any assignment as a Harvard student.

The model answers, slides, and videos!

The DAM assignments

I found the in-class checks super helpful in clarifying the material and testing our knowledge of what was being covered in lecture. The DAMs, as painfully difficult and time-consuming as they were, were very valuable in applying our skills.

- The DAMs (ie the paired assignments) were based on real datasets and scaffolded our learning in each topic.
 - The learning checks during the lectures gave us a chance to consolidate what we'd learned.
 - The lectures were carefully planned and addressed topics from multiple perspectives (eg using algebra, graphical representations and words).
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Course slides, section slides, DAMs

The horse drawn potato! Also having the opportunity to talk with Andrew in smaller settings was really helpful in understanding complex topics, as well as planning for the future.

The lectures are great, Andrew is really good at explaining complex material in a concrete way, and does a nice job of what he calls "layering" from one class to the next. I also think the DAMs are great opportunities to apply your knowledge and I learned a lot from them.

Andrew's notes and notes from section were incredibly helpful in condensing the material and giving model language

The assignments really helped in establishing understanding of the heavy content matter.

The course's philosophy is that "statistics is done with others" and not alone. Therefore, the course allows everyone to work with everyone on anything. This is its most effective aspect.

Apart from that, the course has endless learning opportunities. The one I found the most valuable are:

1. Access to presentations, do-files, model assignment answers, and other written sources.
2. Open office hours where you can just sit next to TFs and work on assignments.
3. Lectures.

The DAMs were a great opportunity to put our knowledge to use, work with a partner to apply our coding and statistical knowledge, and then present our findings. These assignments are already coming in useful, since they have prepared me to present my work in a way that I can apply to performance tasks for job interviews.

Section Slides

The data analytic memos were extremely useful in taking the skills presented in class and section and applying them to real-world data sets. I also found the lectures very engaging. Rarely do I sit in a two hour lecture and wish for it not to end, but that is how I felt in S52!

The DAMs really did help me understand the material (although we spent too much time trying to find a very particular way to express language). The in-class quizzes were also helpful for staying focused and on task. I also REALLY enjoyed the opportunities to have lunch with Professor Ho!

Andrew's lectures are AMAZING. The DAMs also do a good job of helping you to practice your skills.

The DAMs were the most valuable - you learn stats best by doing the work! Plus DAMs were done in partners, which facilitated learning as well.

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1. Potato Technology
 2. Stats dances
 3. Interactive excel sheets

Sections

The DAMs were the most valuable to me. Those and section. Having a second (or third) pass at things helped a lot with clarification. The final was also a nice way to bring things together and I felt really proud of how much we had done in such a short amount of time.

The .do files for the DAM really taught me how to code, which enhanced my ability to analyze data.

The Powerpoints and DAMs were very helpful.

The DAMs were an excellent and practical way to test our knowledge

DAMs

Lecture PPTs are helpful to reference, TF's are amazing, quiet questions work for some people (it did for me!)

Section, lecture (once it was layered a few times), partner work and group work, collaborating with folks in class, all the assignment, the final.

DAM's and Final exam.

Lectures, Sections -- because they helped to clarify the material and let us practice (section and learning checks)

Andrew's lectures, though fast-paced, are very helpful. The course set-up is very iterative and students are encouraged to review materials regularly. The way things spiral makes review easy. New knowledge is builds upon previous lessons in a great way.

Andrew's slides and the section slides.

The DAMS and the opportunity to review concepts in section were most useful in internalizing and practicing the ideas presented in lecture

Course and assignments were very good.

Lectures and their powerpoints were most useful as they contained all relevant information and examples.

Though frustrating at times, the DAMS provided invaluable opportunities to practice what we've learned in class and to help you to understand what you do and don't know

Partner DAMs and sections were very helpful, as well as the Excel animations

Sections were the most useful in terms of completing assignments and reinforcing learnings from lecture

Learning check, really helped me check whether I understood the lecture or not

the visualizations - im a visual learner and it was nice to see what the numbers were actually doing. Andrew's dance moves 10/10

The lectres and specifically being able to rewind and go over lectures at your leisure were super helpful.

Above all else, the DAMs (Data Analytic Memos) were great learning opportunities, a chance to put course principles into practice. They were definitely challenging/tricky, though. Lectures were well-conceived and mostly well executed (there were a few things I thought could have been better explained, of course). Another thing I did love about the course was the philosophy of "layering over" - that is, the idea was that we would learn a concept and we could get a chance to practice is later by building off of it in a new way. In-class discussions were great in that they nearly always helped us build on ideas from the lecture. And sections helped illuminate principles in a new way.

Partnering on assignments was HUGELY valuable. Gosh, I cannot overstate the value of the partnering dynamic. But the DAMs were great for reinforcing the course content. I had a love/hate relationship with those things. Finally, I actually appreciated the final exam. It took years off my life in terms of stress leading up to and through the darn thing, but it brought home how much we've learned and how much we can now do (with help of notes and some group collaboration before we opened the exam - ha!).

Group assignments. I was able to discuss with my partner and challenge our own assumptions.

DAMs, Canvas materials, lecture slides, lecture videos...in short EVERYTHING!

The DAMs are incredible learning opportunities. They really require you to apply your knowledge, and reveal where you did not understand things (that you thought you did). Not that the course isn't plenty of work, but I almost wish there were more of them so that you could get a few more reps in on using the various methods.

Everything was so new to me and I found all the analytic instruments were quite useful

Everything was valuable. The lectures were clear, engaging, and patient. The DAMs helped pinpoint specific learning objectives and enhance skills. The sections took time to clarify confusing subject matter from lectures and how to approach the DAM. The class is great.

Sections were valuable as they allowed for students to practice quantitative skills

Lectures, videos, and class notes.

The lectures were absolutely fantastic and the group assignments were very challenging and at the same time very rewarding.

The "do your own analysis" in DAM 3 was probably the most helpful assignment, and I'd encourage having more than one opportunity to do that in the future, especially in later content. I also appreciated Andrew providing feedback on some assignments. It demonstrated his investment in the course and his students' learning.

DAMs

The weekly group assignments (i.e. DAMs) were most valuable. The assignments were layered, and reinforced my learning. The quiet questions during lecture time enabled classes that were rarely interrupted. The Learning Checks during class was such a novel way to check attendance and our level of understanding.

The lectures were recorded, enabling me to go back and reviewe each lecture. I found it really helpful.

Lecture videos and slides so I could go back and re-watch after class.

Quiet questions - allowed for further understanding.

DAMS - good check for understanding.

What specific course attributes or materials did you find LEAST valuable? Why?

I did not buy the textbook.

The discussion sections were hit-or-miss because a) I could only attend an evening section and was usually unable to process any more information by that time, b) they often turned into Q&A sessions rather than direct supplements to lecture, and c) I didn't always find the coding exercises helpful. Discussions were strongest when they provided explicit clarification (with Powerpoints and examples) on a topic we went over in lecture.

Sections - it was too slow and didn't contribute to my learning.

All of the materials were extremely high quality, from sections to lectures to assignments to discussions.

I found the lecture interludes about effect size or randomness to be relatively less helpful. I also wish that factor analysis had been given more time and not rushed through at the end.

Compared to S040 the discussion boards for S052 weren't too helpful.

TA grading was a bit off because of inconsistency amongst graders but other than that I can't really think of anything not valuable about the course

section run by the TAs; sometimes they didn't have enough depth of knowledge to fully explain concepts beyond surface level. Also the feedback on DAMs was often too vague to know what we did wrong or figure out how we should have done it correctly.

no

Not all the TFs were equally strong in teaching.

Wanted better connection to course text with slides

I did not use the text at all, however, that is because the lectures and sections covered the material so well that there was no need to refer to the text.

The only thing missing from this course was instruction on using STATA. I felt a bit in the dark on the coding aspects at some points.

n/a

lecture slides and lecture were quite difficult to follow or understand - perhaps lack of mathematical interpretation and explanation of the concepts + further explanations in detail could have helped

The slides could have been more clear in terms of language. It was hard to follow slides especially during review after class.

I did not gain much from the lab sections, as they did not provide valuable insight beyond what was already covered in class. Some of the section slides provided practical guidance, but these could be accessed outside of lab.

Andrew moves very quickly. Given all of the supports of the course AND given the ambitious amount of material covered, it makes sense to lecture at a strong clip. However, at certain times - especially the final unit, on measurement, and to some degree during multilevel modeling - the pace seemed fast. Prohibitively fast, as in there were more lectures during those units when I left asking myself what happened in class - what was communicated? What are the main takeaways, knowledge and skill wise? While I understand that the recorded lectures should help, I noticed in viewing a few of those that the lecture still moved too deeply too quickly.

the course just moved way too fast and sections weren't helpful

I think every part of the course was very well thought of. In terms of my learning, the emphasis on the language sometimes in the DAMs would add unhelpful stress which would turn the focus on the language and prevent us from taking risks in trying to explain what we are thinking. Instead it prompted us to copy the slides language instead of using our own.

Section was slow at times, though the slides were really helpful.

- The textbook is pitched too high - it would be good if there were some more readings like the Singer and Willett one (either in addition to or in place of the textbook).
 - Some sections may not be quite right in terms of the balance between assisting students to apply new skills, and serving as a mini-lecture / revision session.
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Attending section

The schedule this year meant that sections took place right after class, meaning that we didn't have much time to process and the TAs didn't have as much time to prepare. Next year they should try to ensure that sections are more spread out.

I did not find section to be very helpful because it was very slow-paced and we didn't get through the activities and materials. The TFs often spent too much time talking through basics without getting as much hands-on practice in. They also had a hard time answering more complex questions.

Truly not applicable, everything that was given to us was very valuable

The sections I could attend were very weak. This was not solved throughout the semester, and that's a shame. Additionally, one must understand (even if there is nothing to actually do about it) that WHEN YOU HAVE NO IDEA WHAT WENT ON DURING THE LECTURE - IT IS ALMOST IMPOSSIBLE TO ARTICULATE QUESTIONS IN SECTION. Seriously, there were times when the entire section group was silent because no one understood ANYTHING and not because we all understood everything. Also, sections (at least in this group) went by very quickly - again, due to the fact that we did not understand anything and it *wasn't* the place to ask (though I'm sure the TFs wished we didn't feel this way).

also, I have no idea why this choice was made (and I assume that there is a very good reason) but after looking for a job for 4 months I wonder why Stata is the choice program to use and not R.

The final was really frustrating because it was so different from all of our other assignments (in length, format, strategy, etc.) It would have been helpful to either be able to work in our pairs for the whole thing OR to have had at least one similarly formatted assignment prior to the final.

Nothing comes to mind.

Sections were very hit or miss, depending on which TF was in charge. In my opinion, second year students who just took S52 last year should not be allowed to TF the course.

This is a hard question to answer because the class was incredibly well thought out and organized from start to finish. However, I did find the last unit - measurement- to be frustrating. It was not clear to me why such a complex topic was crammed into so few days. I wish we had taken more time practicing multi-level models (particularly BLUPS and random-slopes) and less time on measurement (although the final seemed generously graded in those areas).

DAM 7! The content was so rushed. Also, not doing the coding myself made it really unclear what was happening. I don't think I learned anything at all from that measurement unit.

Probably section, they weren't very structured most of the time and should have used time more wisely.

Starting new subjects in the last 10 minutes of class was oftentimes overwhelming.

The lectures themselves was the least valuable in comparison to other methods. It was a completely didactic passive lecture when the faculty taught too much and too fast for students to catch up with what the faculty wanted to mention.

The last unit just felt like too much. I would have rather had another week on multilevel modeling.

Everything was great. There were so many resources.

I don't think there is something less valuable, all the materials complement each other.

Nothing. Everything was perfect

the assigned text

The last unit on CFA/reliability was valuable, but covered too quickly so that I do not feel confident in it as I do the other units

The book. Lecture, section, and google were much more helpful than the book. The book doesn't follow the lecture so it's hard to find where we are at...maybe if lecture and the book were more connected it would be more helpful.

Readings.

The fee for iPac/iPac in general, never used it

The course is very well designed. Few parts seemed unnecessary. I hope the "learning checks" are more assessment-as-learning rather than summative assessments, as it is very anxiety inducing to try to have high accuracy the first time you encounter a concept.

The textbook was not helpful. I am a student who really enjoys textbooks and uses them to enhance learning but I did not like the one that was assigned for this class. The class material and the textbook did not match up well. The iPac book was much better.

nothing stands out as being of particularly low value

The reading didn't seem accessible. Although the online discussion boards were great in theory, they often didn't provide clear answers or help any confusion. Students were rewarded for asking what were sometimes excessive questions.

Nothing!

Introducing measurements at the end was a bit confusing. The slides could also be more clear in emphasizing the main point.

N/A

The book. Did not use it at all.

the labs/TF sessions. My TFs were not very engaging and they didn't seem to have a strong grasp of the content.

I found the quiet questions the least helpful. I'm sure they helped a lot of people, but the questions I had later on were never answered there.

I mentioned already how much I thought the lectures were great, and they were, but I did want to mention two ways to make them better: 1) if a sizable portion of the final exam is going to be about polynomial regression terms, then please do spend more than 30 seconds on how to interpret those in lecture. 2) In general, consider slowing down just a wee bit - at times I thought the pace of the course was break-neck and I recall my TF saying "When I took this class in 2015, we didn't cover logistic regression until spring break" (and we covered logits in February! I also am a bit of a luddite and hated having to wade through the lengthy discussion board to find answers to DAM questions - cover that in class!

I have the textbook and liked it in some points. But in trying to read the material in advance of the classes, the textbook was a bit dense and hard to understand. Might suggest that Andrew suggest that students read the chapters after the in-class sessions.

Lectures were extremely fast-paced and difficult to follow for the majority of the semester.

I never bought the optional textbook. Section could be so good, but wasn't very useful for me because it tended to get bogged down in students' questions about concepts from prior weeks. It really feels like there needs to be faster and slower tracks of sections that you can opt into.

none

If anything, It'd be the sections led by the TAs. It's a crapshoot for whether you'll have a good TA or not. Not all TAs are created equal and some are much better at explaining the material than others. Sometimes we'd have section where the TAs disagreed with each other and confused the students and material more.

N/a

The book, though it was optional, I bought it but did not help much

The large lecture environment was distracting to me.

There was considerable variability in quality between the sections, due mainly to differences in TF expertise.

TF feedback was inconsistent. Some were easy graders, some were encouraging and put a lot of thought into their responses, and others were downright terrible. Some offered practically no feedback besides a word and/or a number. If you give me a 9, I'd like to know what I really did right so I can keep doing it; if I got a 7, I'd like to know what I did wrong AND how I can correct it the next time. Some TF's seemed to like to assign 7s where others would likely have assigned an 8, so I'd encourage that all TF's, and not just a few, actually justify their grades relative to the rubric or grading guideline for each section. It will only enhance their teaching/learning experience and save from particularly negative course evaluations in the future should they decide to pursue careers as academics.

TF's also gave inconsistent feedback on several concepts/items: when/when not to report actual p-values, how to interpret interaction terms, the uses of general linear hypothesis tests, differences in variance between random effects and fixed effects, etc. I got the sense that some TF's knew the material better than others, and that some were having just as much difficulty with the material as students. It made approaching DAMs and the Final far more cumbersome than it should have been.

The lecture slides were sometimes difficult to follow and made it hard to refer back to them throughout the course. I'd especially encourage revision of the hazard and survival probability slides. However, I was glad to see model language incorporated into lecture and section presentations as the course progressed.

None.

NA

Labs weren't always very helpful. They seemed slightly unorganized at times and didn't necessarily line up with what was discussed in lecture that week.

Instructor: **Andrew Ho**

Please take a moment to think specifically about the instructor(s) who taught this course. Please evaluate each item carefully and independently. If there is a question for which you do not know the answer on or which you think is not applicable to this course, please indicate NA in the response area. Note: This section refers to the faculty member(s) teaching this course; there is a separate section that evaluates the performance of the Teaching Fellows (TFs).

	1-None of the Time	2	3	4	5 – All of the Time	NA	Total
A - The instructor established an environment conducive to learning	0% (0)	1% (1)	2% (2)	13% (11)	83% (69)	0% (0)	100% (83)
B - The instructor gave clear and well-structured presentations	0% (0)	4% (3)	4% (3)	19% (16)	73% (61)	0% (0)	100% (83)
C - The instructor effectively led classroom discussions	0% (0)	2% (2)	7% (6)	14% (12)	70% (58)	6% (5)	100% (83)
D - The instructor encouraged diverse opinions and perspectives	0% (0)	2% (2)	7% (6)	13% (11)	71% (59)	6% (5)	100% (83)
E - The instructor clearly explained how course assignments would be evaluated	0% (0)	0% (0)	7% (6)	16% (13)	77% (64)	0% (0)	100% (83)
F - The instructor provided helpful feedback on course assignments	0% (0)	0% (0)	4% (3)	23% (19)	66% (55)	7% (6)	100% (83)
G - The instructor provided timely feedback on course assignments	0% (0)	0% (0)	1% (1)	10% (8)	84% (70)	5% (4)	100% (83)
H - The instructor was accessible to students outside of class	0% (0)	5% (4)	6% (5)	29% (24)	59% (49)	1% (1)	100% (83)
I - The instructor responded to students respectfully	0% (0)	0% (0)	2% (2)	5% (4)	93% (77)	0% (0)	100% (83)

In what ways was the instructor most effective? Why?

Using different methods to present a stats idea was very helpful, such that if I did not understand the math I would be able to understand it through modeling.

Andrew always made sure to check in with us to see if we had questions and never hesitated to elaborate if we were confused.

I have nothing but praise for Andrew Ho. He is the best instructor I've had at HGSE because he effectively incorporates pedagogy into his lectures and into the course more generally. He actively seeks feedback and is responsive to it. He draws on current examples to show how concepts might apply in practice, and he creates interesting assessment tasks. He has clearly put a lot of thought into the structure of the subject and is explicit in his teaching methods. I appreciate how he creates a sense of belonging in the class (ie once people are enrolled in S52, he makes them feel like they should be there). He also seems to work well with the TFs, so everyone is on the same page.

Great lecturer

Andrew was trying to communicate a large amount of highly complex information in a short period of time, and was usually effective at explaining and illustrating concepts in a way that could be applied in practice.

Andrew was incredibly clear and logical in his presentation. His Canvas was so well organized and the material was scaffolded. He also help make sure that TFs were accessible both during sections and office hours. He really did give people the tools that they needed to succeed.

Andrew is a phenomenal lecturer. He can explain things simply and clearly.

General classroom instruction; Andrew is a very effective presenter. He conveys points well and in ways that make sense, and is always open to taking clarifying questions. His potato technology lecture was the best I've been in at Harvard and I'll remember it and Principal Component Analysis forever

Andrew is a great teacher, and he did a wonderful job of making really challenging concepts concrete. I can tell he thought through the many ways students would access the material- some need to see the calculations, some need a visual, some need to read about a method in context of an educational problem, etc. He gave us all those different depictions of the material and it really helped me solidify the concepts. His lectures were clear and well-structured. I like that it was fast-paced and felt like I was learning a lot.

Andrew also was so welcoming to students through hosting lunches and really open to our feedback and interested in our development. It was a pleasure taking his course!

Andrew has a way of taking very complex material and breaking it down. He is very intentional with the resources he provides and makes sure every type of learner (visual, auditory, etc) are considered in his lectures

Andrew Ho is the best statistics lecturer I have ever had the pleasure of studying from (and with).

Ways in which he was effective:

1. the course's philosophy - statistics requires people to study with - which is obviously set by prof. Ho, was without a doubt transformational for me, and for many other students I know. This creates amazing opportunities for learning and growth, which create a positive experience that propels learning and eventual success. when it comes to effectiveness: this is the most valuable part.
 2. Prof. Ho curates wonderful materials for us to use in our own work and studies: great presentations, do files, etc. BUT he also keeps referring us to those sources throughout the lectures themselves.
 3. Prof. ho made time to support students throughout the entire semester, whether through office hours, lunches, or emails.
-

Andrew was great at using different methods for layering over the same subject, which was really helpful for those of us without a stats background.

He used the discussion forum and address students' questions on the assignments so that students could understand better

Professor Ho is so enthusiastic! It is hard not to be excited about statistics when he is teaching. He does an excellent job showing how what we are learning has actually been used in research. I also loved all the "dance moves" and, of course, the potato.

Andrew was very approachable inside and outside of class. His lectures were always clear, and he was quick to clarify any misunderstandings raised in person, via the discussion section of canvas, or in quiet questions.

Professor Ho was very interested in the students' learning process. He provides diverse means to communicate our questions, either in class or through Canvas, which could be very helpful.

The presentations slides and the way they were structured were excellent

Very knowledgeable and efficient with time. You will learn a lot as long as you all resources.

He is energetic, enthusiastic, available, helpful, and a really great researcher (and teacher and person). He clearly likes to teach and it shows. He is patient and encouraging and works hard to get to know his students. He uses math and visuals to explain concepts which was super helpful. Really solid teacher.

He worked very hard as a teacher.

engaging in class, made learning fun and kept me focused (which helped me learn)

Andrew's depth of knowledge and cross-cutting explanations were very effective. Students were given the opportunity to learn from many perspectives and gained insight into how certain topics are likely used in the field.

Presentation style. Happy medium between "dry" content and real world examples, banter, and tangentially related topics. Clear explanations. Willing to stop and answer questions.

Dr. Ho balanced the fast pace of the course with a wide array of learning scaffolds and a close attention to student questions/developing understanding to make what might be an overwhelming load feel manageable. I personally appreciated the intermittent stream of meta-commentary in which Dr. Ho talked about his reasons for structuring the course the way he did and for reminding us of the nature and purpose of the resources available to us.

Mostly clear lectures, recapping and providing big picture, catering to different learning styles, partner assignments were excellent.

Great lecturer and excellent presentation slides.

Andrew is a master at explaining difficult statistical concepts in such a way that makes them seem less mystifying. He is a wonderful and engaging lecturer and also extremely helpful outside of class.

Andrew Ho is so enthusiastic about statistics and you can really feel that energy and makes us believe that stats is doable.

Despite the large class, Prof Ho ensured he spent time outside of class with students (and these were absolutely worth it)

Very responsible, very intelligent, very good teacher

Andrew was/is very encouraging and grades were not the priority in this class. rather it was whether you felt like you had growth and understanding. and whether you as a student felt comfortable and wanted to learn more.

He was a very good presenter and knew the content very well and valued others opinions and acknowledge them if they were correct.

Andrew is clearly incredibly gifted and knows his materials very well. As a result, he does an incredible job teaching the course. He explains material well 95% of the time and designed assignments that were challenging, but mostly within reach. He is also really committed to the idea of reinforcing knowledge by layering over it time and again, and providing timely feedback to students, and creating a culture of collaboration and reassurance. I liked that he offered us multiple opportunities for lunch this semester, thus ensuring we had a chance to get to know him in a smaller environment. And frankly, Andrew seems to care about us as people as well as our trajectories at HGSE.

Andrew had a great way of making complex material approachable - maybe not easy but at least approachable. He also made himself available between a busy travel schedule of his own. What's more, he did a good job of triangulating resources to help students with comprehension and mastery - from sections, to videos, to materials, .do/data files, etc.

The instructor was in the best to facilitate classroom learning in terms of how he structured the content and organized group projects.

Andrew Ho clearly has vast knowledge regarding data analysis and this was made apparent throughout the course.

Andrew is an incredible lecturer. He is brilliant and kind, dorky and clear. I didn't spend much time with him outside of lecture, but I appreciated his openness to student questions. He always stayed after class to chat with anyone, was very involved on the discussion boards, and was willing to answer individual emails.

Extremely clear expounding on the new concept and terms using images and analogy

Professor Ho is an incredibly engaging, enthusiastic, and knowledgeable teacher. His fluency of the material is undeniable, and his ability to explain complex concepts and facilitate learning is unprecedented. He's a wonderful professor and I'm lucky to have learned from him.

N/a

Andrew is an excellent teacher and professor.

Professor Ho consistently provided exceptionally illuminating lectures that fostered a deep understanding of the concepts and technical skills taught in the course. He was an engaging instructor, managing even to inject humor at the same time that he explained very serious and challenging topics. He always supported a respectful learning environment, and he intentionally addressed students' anxiety about statistical methods, which is essential in any math-focused subject. I always felt that I could approach Professor Ho with any idea or concern I had, and I felt both respected individually, as well as considered a valued member of the learning community.

Andrew is incredibly encouraging and positive, and that was particularly helpful to boosting students' confidence and learning growth.

He made a really scary course less scary

Andrew cared so much about us!!! He made a lot of time outside of class to get to know us individually, and he brought so much positive energy to the classroom that it was contagious. Andrew also has a way of ensuring that we are all able to learn a seemingly daunting content. I appreciated his scaffolding and encouragement throughout the course.

The lectures were well designed.

Clearly explained concepts
 Was passionate about the topics
 Answered student questions in class and through quiet questions

Positive energy, passion for teaching, and able to clearly explain complicated concepts.

The whole course is so well-designed and well-organized. Andrew would try to tell us that he isn't responsible for this and merely inherited a perfect course, but we knew that wasn't the whole story-- he is behind a lot of that design and organization. The care he puts into choosing real-life examples and data sets and establishing online resources for feedback and discussion are just two of the many ways he has added a ton of value to this course.

Andrew was an incredible teacher in all senses. He motivated the reasons for data analysis. He also made us more confident in our abilities to be analysts professionally.

Andrew is an excellent teacher. He breaks content down very well, and designs activities that are conducive to deep learning and understanding.

Professor Ho was most effective in building an environment that was conducive to learning. He really tried his best to schedule lunches and office hours to get to know all of the students in the class. He also really encouraged collaboration among students. I definitely think my learning was supported in this class.

He is unbelievably brilliant and it is clear he cares deeply about students learning and succeeding. I appreciate his willingness to host lunches to get to know students and to be available in different areas of life related to stats.

N/A

multiple ways of learning, storytelling, interactive

Andrew is absolutely amazing. He cares so much for his students and our learning. His passion for statistics is unparalleled.

Incredibly engaging and available

Andrew created a warm, supportive learning environment.

Very good lecturer and set clear expectations.

Andrew is an excellent lecturer, making complex statistical concepts easily understood by grad students through metaphors and clear language. He also is very good at tying in earlier concepts into later lectures to remind us of the bigger picture.

In terms of responding to student questions, providing corrective feedback on assignments

He was patient and gave clear instructions.

Prof. Ho is the reason this class has become my favorite graduate school experience. He is excellent at engaging students in the material, explaining core concepts, and guiding students through the process of understanding the material in a variety of ways, so that everyone can take the approach best suited for them.

Andrew gave lectures that illustrated both the core skills (needed to do the DAMs, for instance) AND the concepts explaining how statistical methods work and fit together to create knowledge.

Andrew is a gifted instructor. He is a really effective communicator and exudes a genuine joy for teaching statistical concepts- his use of visuals, physical movement to represent a concept (the "dance moves") and carefully selected examples/references to "real world" work made this learning experience fantastic.

The way he explained complex concepts was innovative and he actually made it fun to learn.

Andrew is a masterful teacher. He is both extremely engaging and passionate about statistics. He genuinely cares about his students and their success in the course.

What recommendations would you make to the instructor to strengthen his or her teaching and/or make the course more valuable?

More time for questions during class, maybe pausing for students to ask questions. The in-class quizzes were also helpful. More of them and some time to ask clarifying questions around them would be helpful.

N/A He's perfect!

Perhaps the descriptions for each topic in the syllabus could link more closely with the titles of each lecture.

Perhaps some easier topics or parts of lectures could have been condensed to allow more time for very difficult topics (eg the Beaufort scale was interesting as an introduction to/example of measurement concepts, but we seemed to speed through parts of the measurement topic).

Perhaps there could be additional (even optional) learning checks to be completed after a lecture that could summarize the key points from the lecture.

I really liked the learning checks and would have liked to have had the answers to them immediately after class.

More time for questions during class, and turn to see the sides of the room!

I think sometimes Andrew went on tangents (for example R-squared) and it was not clear to me if it was information that we should be really internalizing or being presented as an aside.

There was too much content at the end -- the last part of the semester felt rushed. I think it would have been more helpful to consolidate our learning from the whole course instead of cramming measurement in at the end.

None I can think of, keep doing what you're doing Andrew! Especially the informal lunch was a great idea to get to know each other better.

I think there may need to be points designated in the lecture for Q&A- since Andrew often doesn't see people who have questions and the times we did stop it felt like we lost momentum some of the time. Maybe pick out points of the lesson that are good stopping points and pause for question then, but put a limit on it so it doesn't take too long?

The material is very rigorous. There were moments where it would have been nice to slow down the material and really dive into it rather than covering a very broad set of objectives

1. I would appoint a TF to let Prof. Ho know when he is rushing through a subject too quickly. In the few instances when he did, I was left feeling like the stupidest person on earth, which is not a good way of promoting learning.
2. I think we should get stricter and richer examples of proper statistical language with which to interpret findings, for each analysis.
3. I think there should be a mid-semester survey regarding the sections, so feedback could be given to TFs and changes could be incorporated.
4. Remind us of the "bigger picture" as much as possible: where we are within each method, why are we doing what we are doing, etc...
5. Maybe it's only me, but: please EXPLAIN WHAT IT MEANS TO CONTROL FOR... CLUSTER... ABSORB... and all these other Stata words (which are also statistics words) that nobody is actually explaining. In real-life, most of us will remember the general concepts of research designs but fail on the programming side. Those subtleties are very important.

But I have to conclude that Prof. Ho is truly a *remarkable* lecturer, so all of these are not a big deal...

Don't start new material at the end of a lecture.

1. He should speak slowly and clearly, making sure that students might not understand the complicated concepts which might be clear to him (as an expert) but not for students who are studying.
2. He should spend more time on explaining "statistic language" to students, making sure that the technical barrier does not prevent students to understand key concepts.

Please reduce the content just a little bit. I would have much rather learned a little bit less, but felt more confident in the things I learned. I especially wished we had more time for multilevel models because they seem really important. I am still not confident choosing between the different types and am hesitant to attempt one on my own.

More potatoes.

I would recommend that for some topics that are more challenging he could take more time to go through the lectures. I had the impression that we were running at some moments. So, sometimes it was very difficult to ask questions because I did not even know if I was following correctly the lecture.

Everything was great

It would be helpful to learning if he made himself more receptive to basic questions and made the classroom conducive to discussion. He routinely does not notice students with raised hands waiting to ask questions. I found him to be flying a bit high, and slightly condescending toward questions that were basic. The lecture did not help much, slides were good, and Eddie Kim (the TF) taught me pretty much everything.

Very small note, but sometimes the metaphors/imagery used during lecture are not as helpful as they are entertaining (?)

Talk a bit slower. Pause for wait time for us to process what you just said before moving on to the next thing. Maybe have a slide of key terms per unit? That would be super helpful (especially as it really is like learning a new language).

Make the explanation even simpler if possible.

I thought Prof Ho was fantastic!

More iteration of questions through different DAMs and as many models as possible. At least one assignment (even if optional) where students choose how to deal with missing data.

Not sure if this would strengthen the class but sometimes I noticed that Andrew would say "one more question" and then end up taking 2, 3, sometimes 4 more questions. I always wonder if this throws off the pacing of class time and/or if this rewards students who are less likely to follow directions (students who keep their hand up anyway after being told no more questions).

Personally, I often found there to be big epistemological/mathematical questions underlying the application that felt unaddressed. I understand that the course is already full to the brim and that lecture/required materials might not be the appropriate place to delve into those questions, but a set of references to help with our deep conceptual understanding of the statistical methods and mathematical structures in the course would have been useful for me.

The final exam experience could be improved. The discussion board was meant to be helpful and sometimes was, but also bred more stress. Questions were being asked that were very important clarifications that you'd only get if you were checking in frequently, which was disruptive to exam taking but felt necessary or else risk missing out on really important information. The extension was also meant to be helpful but was more stressful and felt unfair to those who couldn't spend more time on the exam and had planned their exam periods based on the schedules given, only to have to change plans once the extension was granted. This created a very stressful exam period and took away from performance on other exams too. But the partnered format of the exam was great otherwise! I am sure with a few small changes, the final exam experience could be great overall.

Spend more time on measurement at the end of the course. This unit felt a bit rushed.

Prof Ho could do a temp check during lectures - sometimes the pace was too fast.

make a giant Do file available

I have only two suggestions: 1. Please stop scaring students at the beginning of the semester. The first two to three weeks of the course I felt like I was going to fail. And part of it was because I kept hearing from the teaching staff that this class would "scare" us. I'm up for a good challenge, but balance that a little more with support rhetoric. Yes, this was a hard class, but I don't know that I needed to be scared as much as I was! 2. As I said earlier, slow down just a wee bit and be realistic about how much people can learn deeply in such a short span. For instance, the last two classes on cluster analysis were just too much - I felt we rushed through that just for the sake of doing so. Maybe that time could have been better spent reinforcing earlier topics in the course.

I would love more time on some of the content, but the pace seemed to match the course objectives and the NEEDS of the course. If we had sacrificed any content for speed, then we would be at a disadvantage in the doctoral program in terms of content we need exposure to by end of spring.

I suggest that lecture slides be labeled according to the content rather than simply "Unit XXa" "Unit XXb".

I found the course to be a little too strict/stringent, it was difficult to approach Andrew Ho regarding concerns.

More of the learning checks! I think these are actually really valuable. I would have liked to have had them interspersed throughout each lecture.

I think you might want to create a more formalized structure for students to work together in larger groups than their pairs. It would be awesome for students to have like a weekly drop in time when they could get together to review each other's DAMs?

Also, like I said, I think there should be tracked sections so that everyone gets the opportunity to move through the content at their own pace.

More exercises, more calculations

Be conscious and mindful of who the TAs are and how they interact with students. Also, grading the DAMs seemed to have some inconsistencies depending on who was grading...

He is a great instructor but sometimes he goes through lessons too fast, and many students are not able to understand all of the material

Get the students to be quiet at the beginning of class. That was wasted time.

Honestly, I feel that Professor Ho did absolutely everything an instructor can do to make for an excellent learning experience for students.

Either find TFs who will be collectively consistent in their grading and explanations of material in sections, or devise more effective checks to ensure that there is greater consistency in feedback and content provided by TFs across the course. I'd encourage requiring TFs to justify their response to every graded item before assigning a grade. That could simply include saying something like "Robust discussion of the interaction terms and connecting it with random effects models. Great work! " before assigning a 9 or "I see where you're coming from when you did..., but in this case we need to do...Next time, make sure that you..." when assigning a 7 or below. I'd also pair more experienced TFs with less experienced ones and continually check the language of feedback to ensure that TFs are identifying errors and also explaining how to fix it in the future. You can't have a growth mentality if you don't know where or what to grow. I'd also double grade or quality check particularly difficult DAM questions to ensure that provided feedback is accurate.

I would have loved to have seen Andrew just doing complete data analysis examples via a recorded powerpoint. Similar to the recorded power point presentation for class, I'd consider making recorded powerpoint presentations where Andrew just walks through real life data analysis examples. I'd do these over the course of the semester (i.e. multiple regression, logistic regression, hazard probabilities, and multilevel models) and make these supplemental. It'd also be a great way to add in model language without overcomplicating lecture slides. I recognize that lecture is built around data analytic examples too, but lecture is more about understanding the concepts and processes. These supplementary materials can really focus on seeing them in applied settings.

Dr. Ho is super super smart and sometimes it's hard to understand what he is saying.

None, I really owe Andrew a lot for my transformative experience and self-confidence in data analysis.

NA

Regular office hours might be helpful, but you're very responsive by email and over quiet questions already, so I don't know if office hours are very necessary.

Some of the DAM questions were vague, and it was difficult to tell what was being asked.

This suggestion isn't so much for Andrew as for HGSE and the quantitative data analysis sequence as a whole. I noticed this semester that the epistemological and ethical considerations of research methods that are present in every qualitative research course I've taken at HGSE are absent from the quantitative sequence. In the qual courses, we are taught to interrogate the epistemology grounding our methods, question how our positionality affects the validity of the methods we use, and reflect on what is left out of our data when we choose certain methods over others. We don't do this in the quant sequence-- even though it may arguably be more important that we learn the beliefs about knowledge that ground statistical analysis and learn to analyze when they are appropriate for educational research, and when they are not. Andrew, I know that you are concerned with these issues, and I think they need to come through more in the course design. When they aren't brought up in the sequence, the "hidden curriculum" implies that there aren't ethical issues with, say, the simplification necessary for PCA; it implies that the mathematics "controls out" the ethics. Professors may know that this isn't the case but that isn't transmitted to students. There is an ethics to doing statistical research, and a host of assumptions that come along with doing statistical research, that are neither communicated nor interrogated in the sequence as it stands; as a result, students come away with the belief that statistical analysis = unbiased truth. Yet the methods we're learning are full of assumptions about how people behave. This omission can have very real consequences for how teachers are treated, how students are grouped, how neighborhoods are policed, how schools are funded, etc. As a former classroom teacher, I can draw direct lines between some of the methods we learned in the quant sequence and practices that I felt morally uncomfortable with as a teacher. HGSE students leave the quant sequence with an immense amount of knowledge and skill, but I worry that they don't leave with a deep enough understanding of the nuances of statistical research and how it may affect real people down the line.

Having consistent office hours would be helpful. When we were stuck on a question, we didn't know how to talk to someone for help.

The unit reading breakdowns that were provided in S040 were excellent, and something similar would be useful alongside the textbook and the lectures.

I would recommend just keeping an eye out for hands/questions on the edges of the lecture hall. I also would recommend slowing down the pace of the class. I feel as though the beginning was quite slow when it was just mostly review of material from S-040, and then the pace was relatively faster when newer more challenging material came.

Maybe recognize not all humor is humor to all individuals, try to be a little sensitive to where people come from and what might be comfortable and appropriate for everyone.

make the slides less dense and clearly show which topic is being covered/discussed because its hard to tell and i'm a visual learner so having distinct markers on slides of what we are doing helps me understand where we are and also helps me remember better, but all the slides look too similar with too much output/words that I can't differentiate between them well enough and they often just overwhelm me instead. I also think it would help me follow along in lecture better because sometimes if I space out for a second and come back I can't tell what we are talking about because the slides are so confusing. Although the learning goals are presented in each lecture, sometimes I am still very unsure what we are supposed to be taking away/learning from a particular section while in lecture.

no

Speak slower! Decrease filler words and increase wait time. Include more math to deepen real understanding of statistics.

Make the slides clear with more delineated structure

Pace was too fast at times!

Nothing! I can honestly say that this was one of the best taught courses I have ever taken (and I've taken a lot across many universities). The teaching in this course and the structure overall truly made me understand the value of being at Harvard.

I often felt that the information (conceptual info, clarifications about the DAMs and what we should/shouldn't say in our responses) varied based on which TF you spoke to. A little more consistency throughout would have been helpful.

the last part of the course seems a little hurried. It would be better to allocate more time to lesser concepts over covering more concept in less depth. (Depth over Breadth)

Also, providing more examples of international and other real-world studies that directly use data analytic concepts from the course, and providing students more hands- on experience on those would be helpful.

Sometimes, there was a bit too much information in the slides or in explanations offered during lecture. It can be easy to become overwhelmed with this. The professor could benefit from distilling some of his lengthier explanations to a key sentence or two and reducing the sensory overload on some of the slides.

Truthfully, the course may try to pack in too much. I would advise dropping the unit on measurement. If not that, then possibly try to blend logistic regression and survival analysis units? Don't drop the interludes, though, especially the one(s) on causation, as those establish core understandings related to research design.

I think that the final was "too different" from the DAMs. I really appreciated not needing to wrestle with code, but it would have been helpful to have one assignment like this before the final to "get used to" the type of troubleshooting we needed to do for this assignment.

N/A

I know someone brought this up to you already, but incorporating some practice with "data cleaning" would be excellent. Also, decrease the amount of time spent each class on announcements! If you have announcements, consider sending them in an e-mail or even a video message posted on Canvas.

What was your reason for enrolling in the course?

	Percent (Count)
Elective	53% (41)
No Response	3% (2)
Program Recommendation/Distribution Requirement	24% (19)
Required	21% (16)
Total	100% (78)

On average, how many hours per week did you dedicate to this course outside of class?

	Percent (Count)
10 to <15 hours	26% (20)
2 to < 4 hours	3% (2)
4 to <7 hours	27% (21)
7 to <10 hours	38% (30)
More than 15 hours	6% (5)
Total	100% (78)

What advice would you give to students who are thinking of taking this course (about its level, the amount of work required, any prior training needed, ways to get the most out of the course, etc.)?

It is going to be a lot of work, but you will come away with a strong understanding of quantitative methods. Andrew is a phenomenal teacher whose enthusiasm is infectious.

I gained so much from this class. I learned how to tell a story with data that everyone could understand (including myself). Andrew is a great teacher and very passionate about the topics. The class is taught very well and students can learn so much from it.

General tip - it's very helpful to re-watch lectures after class to help solidify your understanding.

It's no doubt a challenging class, but you will conquer and love it!

TAKE THIS CLASS!!! YOU WILL NOT REGRET IT!!!

It's a lot of work...

Very rigorous workload. Would strongly recommend taking this course with a lighter course selection overall. Finding a strong partner is key to success in this class. You will struggle if you have a partner not willing to put in their fair share of work. The final this semester was especially difficult and due within a shortened timespan, so I strongly recommend lightening a workload or rearranging final assignment due dates to where you can dedicate sufficient time to the final.

However, take the course if you can! It is by far the most beneficial class in terms of skills gained and knowledge learned. You are provided with a ton of analytic tools that employers care about. Andrew is very supportive and while not as accessible as Joe from S-40, he does make an effort to get to know students and actually improves aspects of the course relative to student feedback.

You don't need a statistical background to take this course, but you will be better off if you have taken an introductory statistics class previously (within the past couple of years) or find a partner who has and has strengths/weaknesses which can compliment your own.

This course requires a lot of work but it is all very valuable and there are lots of opportunities to get extra help in meeting the challenges of the course.

Review, review review!

It is a difficult class but helpful to have these skills.

Take this course if you are interested in research, stats, or going out and applying these skills to immediate job opportunities. If you are just interested in taking it to bolster your doctoral application, that's not a great reason- you'll end up taking a course like this anyways. But Andrew Ho is a GREAT professor, and if you want to learn from the best and greatly enhance your understanding of statistical analysis, this class is for you.

WARNING: I would only recommend taking this course if you are QUITE confident in the skills you gained in S-040. I personally made the mistake of feeling only SEMI-confident coming out of S-040, and I felt completely lost throughout the entire semester of this course. Don't take this course because you **might** get a job after taking it. Take something you are passionate about. If data analysis makes you all giddy inside, take S-052. If it doesn't, you might find you are quite miserable spring semester.

As it's an advanced course data analysis, it is definitely one level higher than S040. It is complicated, but you will have the opportunity to conduct real-world data analyses when you acquire all the skills. I suggest you take it if you are thinking about electives - this is one of the courses of which the content you find most universally applicable, and, of course, don't forget to reach out to Andrew or TFs whenever you have a question - they are really ready to help!

Oh my gosh. It is scary but do it anyway!

Stay on top of the work!

Go to class. Every class. Seriously.

Be open and honest with your partner - about what you understand and don't, schedule challenges coming up, etc.

Make a set schedule for working on S52 every single week. I used the time directly following class as well as specific evenings and time on weekends. It takes a lot of time but if you make the time, you can survive.

You will work *hard* in this class and be ready to put in many hours per week, especially if you want to master the material. Some weeks might be fewer, but I would say about 10 hours per week at least. One piece of advice is to open the DAM *as soon as it is released* and read through it carefully so you know what is expected. You will not always have the tools you need to do everything immediately, but at least you will be thinking about it. Have a draft of the DAM done by Tuesday before it's due Friday so you can get help in office hours. Think carefully about who you select as your DAM partner, and devise a strategy that makes sense for both in order to maximize learning and reduce time spent. Our strategy was an uncommon one to be sure: we both did the entire DAM alone and then compiled. The downside is that we put in a ton of time; the upside is that when it came time for the final exam, we knew the material well. Communicate clearly with your DAM partner about expectations. One final thought: Andrew mentioned that he anticipated the final exam would consist of four hours of writing - I really believe it might have been three or four times that. The exam was fair, but long, so be aware that it took a while. Another pro tip: provided the exam structure remains the same, do not spend a ton of time trying to anticipate questions on the first day; instead, read through the data with a partner to get a sense of what could be asked, then just open the questions and get going (maybe even the end of the first day to give yourself time. Have fun! ;)

it is very fast paced, but reach out to Andrew and you can definitely get through it. I did!

Thinking about the balance of your life... You will spend lots of time on it, though it is quite worthy. Also, find a good partner!

You get out of this course what you put in. If you really want to understand statistics, you have to be willing to put in the time and effort to really understand each concept whether this means re-watching lecture videos or bothering TFs outside of class or utilizing your classmates as a resource. You will have everything and more that you need to succeed at your disposal!

Use all the resources available to you and the learning load becomes less intense: even when sections feel redundant or less tightly organized than they could, go, do the work, and the assignments will be much easier.

Great course, btw.

Pay attention to the slides. Many of the answers/explanations are directly in the slides. Go back to S-32 slides (esp if you did not take S-32) for more in-depth explanations of some concepts (esp interaction terms and quadratics).

Start the DAMs early, pick your DAM partner carefully, go to section, go to lecture, breath and have fun, it'll all be ok, the teaching team is fantastic!

Hard work in this course pays off.

Don't buy the book. I loved books and I only opened it once. Instead, go to all lectures, pay attention. Go to all sections- all of them! Or watch them online if you can't make them. Find a way to get into Eddie's section- or Jane- they are both great. Put in the time on your assignments early. Pick a partner you already know you work well with. Have a group to work with in addition to your partner. Ask for help from Andrew, TFs, and other students. Try really hard and you will get back what you put into this class.

1) Talk to your partner before deciding about how you work best, which days you are available, etc. to make sure you are a good fit - This is someone who will greatly enhance your learning if you find a good match

2) Yes, it is "a lot" of work, but it is doable. Use all your resources including the TFs, section, google, quiet questions, etc. If you are confused, ask questions to the TF's in section or office hours or during class on quiet questions. If you want a more firm grasp on topics, don't be shy to google around.

3) View the DAM's as mini-research projects. These are real datasets (a bit cleaned up already), but they are actually really cool research questions and stories you are telling with your analyses!

Andrew Ho is not the best teacher but the content is useful if you mean to go into statistical data analysis.

Read the DAM's as soon as they are posted, even if you haven't covered the topics. It will help you to get an idea of what you are seeing in lecture and what you are being asked in the DAM's. If you can find readings/papers where they use the methodologies or techniques that are being covered, it will help you to get a better context of how are these new topics applied.

Start the DAM early. Go through the questions and the lecture .do files and get your own .do file in order. Jot down notes for your answers prior to meeting with your partner, so you can spend your time together crafting strong responses. Use ALL the resources that are made available to you: quiet questions, canvas discussion section, model answers from previous DAMs, .do files, lecture slides, section slides, etc.

When it's time for the final, I HIGHLY recommend having a pizza party and spending 4-5 hours combing through the evidentiary materials with friends. Think about what research questions that outputs can answer, then think about how you might interpret the data to answer those questions.

This course will open doors for master's students professionally, but you have to work for it. Attend every class, attend every section, go to office hours, and collaborate widely on DAMs. Be thoughtful about choosing your partner. Having a bad one can really set you and your learning back. Make sure you know Stata BEFORE taking this class!

The hardest part of this course is to accurately understand what the faculty wants to teach. So meet with teaching fellows and they could explain back to you. Their explanations are, in most of the time, easier to understand than those from faculty.

If you're itching for more knowledge after S40 I highly recommend Andrew's course! S40's style is definitely similar to S52. The DAMs are tougher but I learned much more in S52 than S40, plus it's more applicable and advanced stuff. A must take!

If you're considering it, then do it! It's a LOT of work but truly rewarding.

This course is amazing and will change the way that you read and evaluate research. Don't be afraid! The TFs and Andrew work to make sure that everything is accessible. Take it!

It is a lot of work but the time spent on S52 is time well spent. You will learn concrete skills and will walk away from the class feeling ready to undertake quantitative research. By far one of the best courses at HGSE if not the entire university.

The learning curve which Andrew provides in the first class is explicitly real. Believe it because this class will have a lot of falls for you. However, the ups in this class are as real :)

Don't be afraid of S052! I was not a "quant person" before getting to HGSE, but Andrew is an incredible instructor and the teaching team this year was wonderful. The skills I've been developing in this class are already coming in handy for me in my job search, and I know I have a solid foundation if I chose to continue in my statistical/data analytical training.

Choose your partner wisely! Pick someone who you can spend several hours at a time with, and someone with whom you can problem-solve in a way that feels productive rather than frustrating.

Take thorough notes each class, preferably on paper. Re-watch the lecture BEFORE THE NEXT CLASS if you're not solid on the concepts.

Read your feedback on each DAM right when it is released so your work is still "fresh."

Take this class.

This class is rigorous and can be time consuming, but if you are on the fence definitely take it. It is a nice add-on to S-40 and really dives into the statistics you will need to know in the future

Don't fear this class! It is much less work than I expected. If you can handle s-40 you can definitely handle s-52. There are fewer assignments, and while it will depend on how well you get the material they did not take us very long. You'll get to learn a lot more useful Stata coding, and Andrew does a great job in lectures of explaining the material repeatedly, visualizing the concepts, and talking about real studies that use the methods we're learning. You also get to use his real data sets to try out new questions with them. If you want to do or consume quantitative research this will give many of the tools you need.

Otherwise, advice would be to pick your partner wisely- someone who you know you'll work well with. For us it worked well to both do most of the DAM on our own then come together to compare and do the writing. Shop the sections to see which TFs are going to be most useful if you can.

This is a challenging course that requires a lot of time, and effective working relationship with a partner. The knowledge gained is incredibly important, but make sure that you're ready for the time commitment before taking this course.

Be prepared to spend a lot of time on it

- I found this to be a good way to consolidate and better understand concepts from S40. I think this is a very feasible option even if you are unsure of some concepts from S40.
 - Consider trying different sections in the first week to see which one you will find most beneficial for you. (They will cover the same content but might do so in different ways.)
 - If you find the textbook to be way too difficult, don't buy it. Rely on the slides, other readings, and the section materials, and rewatch parts of the lecture.
 - Go to office hours with the TFs if you want to go over concepts.
 - Keep a vocabulary log of new terms!
-

S52 is a lot more time-consuming than S040. I recommend looking at the DAMs as soon as they are released and to have a weekly time slot scheduled with your partner to work on the DAMs. Working on the fourth floor is really great because Andrew walks by all the time and will check in with you to see if you have questions!

There is quite a bit of work associated with the homework assignments in this class. Students may feel overwhelmed with the material at times, especially without having a solid background in statistics. However, by asking questions and staying on top of the material, students will acquire an applied skillset that is well worth the struggle.

If you want to work in quantitative research after HGSE, whether in as a small part of your job or as the main part of it, TAKE THIS COURSE! It's a ton of work (the weeks before a DAM is due, you'll spend at least 10 hours on it), but so, so worth it. You'll be very impressed with all that you've learned come the final -- which isn't as scary as it sounds, by the way!

So much work. So much. But worth it. Andrew loves his students and it shows - that makes all the difference.

highly recommended

Class moves quick, assignments take up a lot of time to do them fully. Make sure your partner is capable of helping you otherwise the assignments will suck.

Take it. Best decision I made at HGSE. It's loads of work but absolutely 100% worth it! I mean it. Take section with Eddie; it's a game changer.

TAKE IT!! Many of you have probably already taken S-040, so you might as well continue and add to your data analytic skill repertoire. It's definitely challenging, but it's not any more work than you'd might expect in a higher-level stats class - meaning the workload is manageable. Professor Ho is a great lecturer, and I really felt supported by him, the teaching team, and the rest of the students in this class. It was worth taking, especially if you are considering research, program evaluation, or policy work!

You can do it!!!

Find a solid group to work with. This course is a lot of work and is most valuable when you can tackle it with people who motivate you, care deeply about the course, and who you can get along with!

How would you characterize this course in terms of the following?

	1 – Very Low	2	3	4	5 – Very High	No Response	Total
A - Amount of Workload	0% (0)	1% (1)	5% (4)	42% (33)	49% (38)	3% (2)	100% (78)
B - Benefit to You	1% (1)	1% (1)	1% (1)	15% (12)	78% (61)	3% (2)	100% (78)

What is your primary school affiliation?

	Percent (Count)
HGSE Ed.M.	60% (50)
HGSE Ed.L.D.	1% (1)
Other Harvard Master's Program	17% (14)
Other Harvard Doctoral Program	18% (15)
Other University Degree Program	2% (2)
Non-Degree	1% (1)
Total	100% (83)

If you answered "HGSE Ed.M./CAS," what is your program?

	Percent (Count)

Education Policy & Management	11% (9)
Higher Education	1% (1)
Human Development & Psychology	7% (6)
International Education Policy	29% (24)
Language & Literacy	4% (3)
Mind, Brain & Education	2% (2)
Prevention Science & Practice	1% (1)
Specialized Studies	1% (1)
Technology, Innovation & Educ	4% (3)
No response	40% (33)
Total	100% (83)

In this space, you may add any additional specific feedback not addressed in earlier sections of this survey.

Feedback on the DAMs could have been more detailed.

I do wish that Andrew had been more accessible, since the material is so challenging and past-paced.

Great course, fabulous professor, committed TFs. Thanks for a great semester!

Entry to the class (or exit from S040) needs to be monitored more carefully. I was shocked during the first DAM to learn my partner didn't know how to make a DO file. Then I met others in my section who could not! There is a difference between collaborating on assignments and having students fill critical gaps for each other. I think the ability to code Stata should be tested a bit more, especially for master's students who are going to need it immediately for jobs.

N/A

Section was great...a game-changer for me understanding content of class. I think having new info in section first and then in lecture was most helpful (because Andrew goes into more detail...so once I had the main idea from section, I could better process the details)

It'd didn't give me a chance to evaluate Sarah and Vinh, they were fantastic in section and in general!
