**12.3 Program Assessment**

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**DSC680 – Applied Data Science**

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## Program Outcomes

**Prepare datasets for solving problems.**

Except for this last class—Applied Data Science—it seems like each of the classes, in some shape or form, turned us on to different ways to prepare data. From the earliest classes where we learned to clean data by dealing with missing values and outliers, to gradually more advanced techniques such as transformations and encoding of categorical variables, I now have a deep and wide toolbox from which to choose. Applied Data Science challenged us to put this all together in a real-world environment. Having a full toolbox is one thing—learning how and when to use those tools—that’s the magic.

**Recommend appropriate data modeling techniques to test hypotheses.**

Admittedly this is one area where I still struggle, and it’s becoming easier and easier to “cheat”, with the advent of drag and drop modeling applications like SAS Enterprise Miner, as well as open source packages like PyCaret and fastai. I’ve also always had a hard time wrapping my head around the application of the hypothesis testing approach and have managed to still get to the top of the mountain by thinking of the concept in simpler terms. The curriculum taught it—it’s just one of those things I can’t properly get through my head.

**Communicate data science results into answers for domain challenges.**

I believe this is the biggest ongoing challenge for Data Scientists, and it’s one of those things where I feel we each, individually, have to come up with the approach that works to ramp up on domain knowledge. In my team at the bank, we’re constantly being asked to provide performance metrics dashboards for disparate business units. This week I may have to learn the Cyber Security domain, next week Fraud Detection, the week after that Risk Analysis. In my opinion, this is the hardest part of Data Science, and I’m not sure you can teach this one. I also suppose it depends on whether you’re going into a domain more or less permanently, or you’re jumping around. For me, with it being an ongoing issue at work as well as at BU… It can be exhausting. Or… maybe there *is* a way to teach it?

**Identify ethical considerations in dataset preparation and modeling.**

In short, this was huge. I was really happy to see that this was driven into our brains with the very first class. It is so easy to cross that ethics boundary, quite often not even realizing you’re doing it. This is such an important topic it almost needs to be touched upon in every class (but not to the point where it becomes noise and students stop listening to the message).

**Where could the program have been stronger?**

I cannot think of one thing. I literally paced back and forth in my office trying to come up with something and I can’t. We had free access to state of the art software, Blackboard worked flawlessly, the curriculum was well structured and well defined, expectations were clear… Seriously, I can’t come up with any weaknesses. There was only one instructor with whom I had a hard time getting along (I can’t remember her name and I wouldn’t put it in here anyway). Otherwise all the instructors were smart, cheerful, friendly and helpful.

**Are there any gaps or content you wish had been covered and wasn’t?**

I started mentoring a Data Science intern this week and he was asking me about this program. I told him how cool the structure is. First, we learn what Data Science is and is not, and how to always keeps ethics in the forefront. Then we get exposed to R and Python; data cleaning and exploratory analysis. Then we learn how to tell our stories with visualization. Data analysis and data mining. Gradually we move on to more advanced topics like Big Data and Machine Learning. So no, I cannot identify any gaps. For me, the program covered the length and breadth of Data Science.

**Are there any suggestions for improving the program?**

Keep Teams and get rid of Slack! I barely used Slack unless I pretty much had to. Teams I was on every day and I truly believe that over the twelve weeks of this course, everyone in this class became this beautiful collaborative group. More than helping each other, we developed a camaraderie and started to care about each other on a personal level. Over all of the classes, this is the first time I can feel that I’m actually going to miss some people. I firmly believe that would not have happened if we didn’t move to Teams.

I don’t know if the Discussions and follow up replies just went away for DSC680 or for all classes, but that was kind of a pain. I even had a coworker drop out of the program after the first two classes because he just hated having to do that. Teams was SO much easier and more fun. I really kind of dreaded it as well. Teams is just like this really cool chat room where we did discuss topics pertinent to the program, but sometimes we just chatted about ourselves.

**What are your next plans after completing the program?**

Well, let me start out by saying, I’m not your average student. I’m sixty one, I took this on as a personal achievement challenge, and will (hopefully) be retiring in about five years. I guess you could say my “next plans” are to just keep on keeping on. But not really. I hope to find some ways to use these new skills to give back, whether that’s contributing to open source, citizen scientists, or some other altruistic non-profit where my new knowledge could be an advantage. I also hope to post for a teaching position @ Bellevue University in the undergraduate program, and maybe in the graduate program in time. I feel that would be kind of a cool way for me to ride off into the sunset. Fingers crossed!

**Do you feel the program prepared you for being a data scientist?**

I really do, and the main reason is that this program was not highly “academic”. I had a couple classmates over the course of the program who got almost nasty about the lack of formal teaching or being expected to figure out some things on their own (interestingly, one by one I noticed those classmates, over time, were no longer around). I *embraced* this approach. I’ve been in the working world since I was fifteen and I’m sixty one now. The amount of academic exposure that ended up being applicable to working in the real world was *tiny.* I truly feel that the BU approach is the best way to prepare people for what it’s like to be a Data Scientist *in the real world.*