I'm currently taking a MOOC called *Computing for Data Analysis* through Coursera. This is my fourth MOOC (the sixth one, if you count the two that I started and then dropped). It's an introduction to the open-source statistical computing environment known as "R". I got interested in R after learning about this modeling-based Calculus project that uses the statistical and plotting capabilities of R as well as some special symbolic packages as the centerpiece of introductory calculus. I'm leading a taskforce in my department to draft a plan for technology use in the Calculus sequence, and while I don't think we'll be using R, I like very much the spirit behind this calculus project, which puts programming at the heart of learning the subject and uses an open-source platform. Plus, I thought R might come in handy for analyzing my own data, and anyway, it's free, and the course description says it only requires 3–5 hours a week. So why not?

The first week was fine — I was able to lean on my just-enough-to-be-dangerous knowledge of Python for most of the R content — but this week has me reconsidering the notion that MOOCs are "free". They may not cost anything, but there is an expense, namely time. That "3–5 hour workload" estimate turned out to be wildly underestimated, at least for newbies like me. The programming assignment for this week has us working with a ZIP file containing 322 comma-separated value files of data. We are to write programs that (1) convert a user-specified file to a suitable data frame, (2) check to see how many completed entries are in each file; and (3) go through the data files and compute correlation coefficients for each set if they pass a certain threshold of completeness.

It's quite applicable — and it's blowing me away. I spent 3 hours today just on part (1) and somehow managed to get it to work properly. And that was 3 hours that I honestly didn't really have, what with course preparations, grading, service responsibilities, and actual research that needed to get done.

On the way home, I took the time to reflect on why in the world I was doing this. There's really two reasons.

First, I feel it's important to bolster my computer science knowledge, especially since I don't have any real background in CS (other than a Pascal course taken in 1989 that I have completely forgotten) and yet I teach a lot of CS majors and even some courses traditionally taught in CS departments, and some of my research interests lie in the intersection of algebra, geometry, and CS. In particular, I want to be a better programmer, for my own intellectual growth and so I can keep up with my students. With that goal in mind, it's important to realize that struggling with a difficult programming assignment — even if I don't make it all the way through — will make me better at programming if I give it a good-faith effort. Or at least I will not suck any worse.

Second, one of the reasons I have taken MOOCs at all is to remind myself what being a student is like, which in turn informs the way I design my courses. I've learned a lot about course design from MOOCs — equal parts "what to do" and "what not to do" — all based on being in those MOOCs. For this particular course, I'm learning that the lectures don't always impart all the knowledge I need to work the assignments, and so the main source of learning for me is Google and the course discussion boards. I have learned a ton about R through these two resources in the last two weeks, and I'm seeing there's value in being thrown into the deep end of the pool. I'm not exactly taking this approach in the current peer instruction-centric Linear Algebra course, but I do have students doing reading and viewing outside of class, and as I do the same with the R class I can continue to learn how better to manage my linear algebra course, and also remember what it feels like to be a smart student who is struggling with an assignment.

So onward and upward with this MOOC and with R, and I'm hopeful that students can reap the collateral benefits.
Taking the same course. R is a challenging language for a beginner to get used to. I used Try R (takes about 2 hours to complete) to familiarize myself with the language, and it became a lot clearer. The course takes you through the fundamentals at a great pace. Good luck!

Actually I decided to take the Coursera class based on my experiences with that Try R class. It was a nice intro.

Robert, I am actually thinking about doing a presentation at AMATYC on this topic. Are you interested in co-presenting with me? (AMATYC 2013 is in Anaheim, CA Oct. 31 - Nov. 3)

In any event, I have also taken some MOOCs, for many of the reasons you described. In my case also, I have signed up for some to simply download all the videos and material and then later go through the course at my own pace as I have some free time.

I wonder if we (all college teachers) have missed this side of it. That is, even the F students deserve some of our effort, as they will still likely learn some things.

Rob, email me your contact info and we can discuss presenting at AMATYC. talbertr at gvsu dot edu.

Terrific - thanks for your candid perspectives on how MOOCs can work or not. Important to note that you figured into attrition data for 2 out of 6, and still showing higher persistence rates than most traditional adult ed experiences
Well, I still have time to drop out of the R course. :)

brianborchers  6 days ago

I'm also taking this Coursera course, mostly just for the chance to experience one of their MOOCs and only partially because I actually wanted to learn more about R. I have much more experience than you in programming in various languages (BS in computer science and worked as a software engineer before going back to graduate school) so this should be relatively easy for me. The week 2 programming assignments took me a couple of hours, most of it spent looking for R functions that I needed to do particular things. So far, I'm averaging about 4-5 hours per week on the course, and I'd agree that they've underestimated the time commitment for most students. I'll be blogging a review of the course after I'm finished, but my early impression is that this could be done much better.

Anna Creech  6 days ago

I was taking the same course, but I had to withdraw before I got to week 2's work, since that week was already almost over and I'd barely completed week 1. What I learned from it is that with a full-time job and a robust non-work life, I don't have time to teach myself in addition to watching the lectures, so if the content isn't covered there, I'm going to be sunk. There may be value to being thrown into the deep end of the pool, but only if one is able to (or willing to) invest the additional time not calculated by the instructor or the course designer.

I still want to learn some basics about R, so I've been going through the lessons for Code School's "Try R" (http://tryr.codeschool.com/), and I find the hands-on approach to be much more instructive. I'm doing what I'm being taught soon after I'm told why I need to know it (I'm not going to retain information very well unless I know it's important), and at the end of every section, I'm given a task that requires synthesizing what I've just learned. This has been a much better learning environment for me than hours of lectures followed by assignments and quizzes that require even more hours of self-teaching to complete.

Robert Talbert  5 days ago

Week 3 seems to be more hands-on. The lectures actually have little tasks built in, and if you skip straight to the tasks it's really helpful. Generally what I'm finding with the Coursera R course is that if you ignore the lectures, the quality of the course improves dramatically.

ilanes  5 days ago

Nice article Robert.

Re what you learned about course design from the mooc, can you share the high level, take home messages?

Robert Talbert  5 days ago

I'm thinking of a separate post for this, but basically:
- Focus the course around concrete things to learn (such as Udacity CS 101's project of building a web browser)
- Any direct instruction that occurs should be short and immediately followed by formative
Lessons learned from wrestling with a MOOC - Casting Out Nines - The ... http://chronicle.com/blognetwork/castingoutnines/2013/01/15/lessons-lea...