

[NO SPEECH]

**SEAN ROBINSON:** Other challenges include learning how to do data analysis. You perform an experiment in such a way that it hopefully gives you data that is worth analyzing. And data analysis begins with that. Did you even perform the experiment in a good way?

But then there's just technicalities of I have a table of numbers that my apparatus gave me, how do I analyze that? I have to get it into a piece of software. I have to tell that software, make me a plot. Compute an average. Just basic mechanical things.

We don't care what programming language they use. Whatever they use, we promise to help them out with the basics of it. But really, some of the basic tasks they're doing in whatever programming language it is, they're usually not very sophisticated tasks on the scale of computer programming. They're usually very simple things. But if you don't know how to do it, they're very daunting tasks.

We want students in this class to struggle with the material. To really work at the things that are useful to learning. We don't want them to struggle with things that are just, my computer won't compile my paper. We don't want to struggle with things that are not useful to learning.

So again, we have a long series of small tasks that gets people up to speed with some instructor help. Gets them up to speed quickly on these multiple small tasks. So that they are spending their time learning in an efficient way, and not just spinning their wheels. And just getting frustrated and learning to hate the subject, instead of love the subject like we do.