# This is Professor Rogers. In this video I make a few comments about surviving statistics assignments in my classes.

I realize that statistics causes some angst among students who have doubts about whether they can finish the course. I understand the anxiety. I will even go so far as to admit that many students say that this class is the most difficult one that they take. However, this fear does not have to translate into failure. In this video I look at how to think about statistics generally—what we will call the Big Picture—and give a few tips on how to survive statistics assignments in my classes.

# First, the big picture. The ideas shared in this video do not come up in any single class or assignment, but if you keep them in the back of your head while you study statistics, you will panic less and have a greater understanding of the material presented to you.

Lots of students go through my classes and say something like, “I got a good grade, but I don’t know how I did it.” Some of them even feel ripped off because somehow they were not deserving of their grade. The problem here is that we often treat statistics like a subject-matter class where the path to success relies on reading a textbook and learning many facts. The more facts one learns, the better the grade. Statistics, though, is not about learning facts as much as it is acquiring a skill or a craft. To me, statistics is a lot like learning a language by immersion.

What do I mean? If this class were a Spanish class and it were the first day of the semester, you might find me speaking to you only in Spanish.

I might point to a white table in the room while repeating the word “blanco.”

At first you think I am saying the word “smooth,” so you point to the smooth top of a red-colored book and you say “blanco.” I shake my head no.

You then have a flash of insight. You dig into your bag pack and pull out a stuffed toy Penguin (You are, after all, a student at Youngstown State University where people wear Penguins on their clothing.) You then point to the chest of the penguin and say “blanco.” I then shake my head yes.

What just happened? You assume that you know I mean white, but you have some lingering doubts because I never actually told you directly that blanco means white. You might not like it, but at the end of the class you would say that I am trying to teach you Spanish by immersion, and as much as you do not like it, you realize that immersion is a legitimate way to learn a language. Each time you use a word correctly, you understand a little bit more.

The same style of teaching is used this class. You will hear a bunch of words and receive some instructions, and then you will try an assignment. I will tell that you did well, and you will respond by saying, “I don’t know how you can say that—I have no clue what I am doing.” I fully get that you do not always know what you are saying—I’m not fooled at all. However, when you follow a set of instructions and receive my response, it is the same process that occurs when you are learning a language by immersion. Each time you do an exercise, you understand a little bit more.

Look, I’ve been using statistics for almost 40 years, and I am still learning new things about the most basic statistical procedures, so I do not expect you to become a statistics grandmaster by the end of this class.

Second, keep in mind that statistics are nothing more than relationships between numbers. I encourage students to keep in mind what the benchmark is, that is, what numbers are compared. If you pay attention to these points of comparison, any individual statistic is easier to understand.

Next, an analysis is only as good as the underlying data. One can do all the right things technically, yet one can generate an analysis that nobody believes because the underlying data are bad. Thus, not everything about a successful statistical analysis rests with computational ability. For this reason, statistics must be integrated with sampling, research design, and research methods.

Fourth, keep in mind that an element of statistics is a craft or art. Because math is involved, people often think statistics is sciency, that there is one and only one way to do the analysis correctly or one and only one way to interpret a result. The reality is that we are presented with choices to make, and professional statisticians often disagree about how to respond to those choices. I am currently of the belief that there are now so many different approaches to statistics that in a serious analysis a person should do at least two different tests, just to make sure the same general result is obtained.

Finally, a phrase that I use is “once you can do three variables, you can do them all.” This phrase is a reference to how complex an analysis can get using the skills learned in my classes. Once you can conduct a traditional three-variable analysis—one dependent variable and two independent variables—there is conceptually no limit to what you can do. The same technique that you use to analyze the influence of two independent variables will also allow you to do five, ten, or twenty if you have enough observations.

# Now some simple survival strategies to get by:

Follow my directions. Not to be arrogant, but I’ve taught statistics before in a number of settings. I can get you through this class. The only people I have ever failed are students who refused to do the work.

Be disciplined. Doing the assignments when they are due in the syllabus works to your advantage. In statistics, one topic builds on the next, so if you are not up to date with your work, you will just fall further behind.

It’s easy to procrastinate—it’s easy to put off your homework until a few hours before it is due. Some of you might get away with this, but many won’t. The assignments are not necessarily difficult, but there is new material and new skills that may take time to master. This course is best handled by breaking the work into small chunks over the course of the week and methodically working through your task list.

Don’t be afraid to ask for help. Some of you will have problems. You might be afraid to ask questions because you are afraid to look stupid, but I get that you don’t think statistically and so asking questions is a normal part of this class. I will try to make myself available if there is a problem. Try to reach me as soon as you can.

A lot of people find that hearing another person explain it is also helpful, simply because they might choose different words or different examples than I do. If you have a friend in the class doing well, don’t be afraid to ask that person.

Get points whenever you can. Some parts of the course might be difficult, but some are very easy, and there are several opportunities for do-overs on assignments. When you can, accumulate as many points as you can. In my devious scheming, I put enough of these opportunities in the Course Guide so that you should pass with a very respectable grade, even if you aren’t good at statistics. In addition, you should note from the part of the Course Guide where I discuss grading that I will pass you with a grade of only 60%. Trust me: I have no vested interest in keeping you in this class.

I realize that this course is different from many of your other courses, and it is my job to help you through this. While it may be difficult for some of you, the skills you learn are quite useful in many professional settings. I will try to help you any way that I can. If you still have remaining questions, please contact me, preferably email.