**Intro – first day/class notes**

“It’s worth noting, before getting started, that this material is hard. If you find yourself confused at any point, you are normal. Any sense of confusion you feel is just your brain correctly calibrating to the subject matter. Over time, confusion is replaced by comprehension.” [*Statistical Rethinking*, p. 167]

Statistics/econometrics/time series is difficult because it is three difficult subjects in one. You not only have to learn each of them, but also how to successfully combine them.

1. Mathematics
2. Computer programming
3. Statistical modeling of real world phenomena

You have to understand the math, learn how to code it (if you can’t code it, you don’t really know it), and understand how it all relates to, explains and predicts the real world. Any one of these, given the prerequisite knowledge in the other two, is a course in itself, but each requires the other, so we have to learn them all together.

Write your name and preferred nickname/name on a piece of paper. I don’t like being called “Jeffrey”!

Jeff aka Jeffrey Mills aka Doctor Mills aka Professor Mills aka Professor aka Yo!

Write something about yourself.

What do you most want to learn about in this class?

If English is not your primary language, get help! Please! American English is not my first language, and I have gotten into some trouble because of the language barrier: post vs. mail, rubber vs. eraser!

Use 10% of your brain?

How can a person/robot/machine have free will?

What is probability?

Bayesian vs. frequentist

Star Trek or Star Wars?

What does “the Schwartz” have to do with econometrics?

**How to teach a good first day of class**

First day impressions are very important. May be more important than much of what you do later.

Check out the room, computer, technology, etc. before the 1st day of class – movable chairs? Blocked view anywhere? Etc.

1. **Curiosity**

Build around deep questions and problems. E.g. spurious regression/correlation.

How to determine if two time series are really correlated or causally related or not? My “magic plant” and GDP? The 12 month T bill rate and GDP?

What fascinates students today? Make a connection to that. – Machine learning: how does/can a machine learn? What can’t it (yet) learn?

\* Do ***not*** hand out/talk about the syllabus at the start! First spark their curiosity about the course content.

Why should the course matter?

1. **Community**

Emotions are at a peak on the 1st day of class – fears and anxieties, etc.

Foster a sense of community in the room.

Learn students’ names – ask them to write their name and preferred nickname/name on a piece of paper.

Divide them into small groups, give them a simple task, and tell them to introduce themselves – join different groups – circle the classroom.

1. **Learning**

Give them a cognitive task before they are ready.

Something like the final exam.

Invite them to think about “metacognitive issues”, i.e. what learning strategies, help they will need, etc., to be successful. Group meetings solving problems were the best learning experience for me. I still like to do research in a group, especially in terms of problem solving, etc.

Econometrics is 1. Math, 2. Coding, 3. Understanding relationships between math models, statistical results and the real world (relating it to the real world).

The most important element is to set aside a chunk of class time on the 1st day for students to engage in cognitive work of some kind. Problem solving, writing, discussion, e.g. use the Delphi method to predict or decide something.

1. **Expectations**

*After* the above, now is the time to answer questions about and explain.

Course outline, what materials needed, what tests, projects, assignments must they complete. Any other obligations?

i.e. materials, assessments, policies [plagiarism, writing clearly in English], key dates and deadlines.

The class ***finishes*** with a review of the syllabus.

Ask them to read the syllabus and bring questions to the next class (or in the next half hour if a 2 hour plus class!).

**Follow up on day 1**: Produce slides with key findings from the 1st day. If the students created a list of activities that would help them succeed in the course, or topics they want to learn about, pull their ideas together into a one page handout for successful learning.