

Syllabus

Instructor: [Travis Cao](#)

Email: travis.cao@wisc.edu

Course website: <https://go.wisc.edu/i6z3pf>

Objective:

This is a two-week(-ish) boot camp aiming at bringing first-year social work Ph.D. students up to speed and ready for the first-year Ph.D. statistics sequence (i.e., being able to take classes on regression techniques).

Course structure:

- Each lecture lasts 90 minutes:
 - Lecture attendance is NOT required, but recommended for students who haven't taken statistics or math classes in recent years, or students who are rusty about basic statistics or math concepts.
 - * If you have some statistics background and would like to attend lectures as needed, you can do so based on the course schedule listed in the later part of this syllabus.
 - * However, if you are only confident in a small set of the topics (and aren't very comfortable with the majority of the topics covered), I'd recommend you to attend all boot camp lectures, as doing so will provide a better flow between the lectures.
 - * After all, you all are adults, so I trust you to make the best decision on how to use your time.
 - I generally will spend the first 50-55 minutes lecturing, and the remaining 35-40 minutes doing practice problems. Though practice questions don't necessary come at the second half of the class; I might incorporate helpful questions for us to go through as I lecture.
 - A worksheet will be provided at the beginning of each lecture. Both digital and paper version will be made available. We will reference to the worksheet during each lecture.
 - I'll teach each class by projecting my iPad screen. Because of this, **I would also record the screen of my iPad and post it after lecture.** You are welcome to check out these recordings if you want to re-listen to part of the lecture, or if you have to miss the lecture due to various reasons.
- There are two office hours offered during this boot camp:
 - Office hour attendance is NOT required, but I encourage you to stop by if you have any question.
 - If you have some quick questions, feel free to also ask them in class, or ask them after each lecture (I will hang out in the classroom for a bit before I leave).
- I don't plan on assigning any homework at the end of each lecture, or evaluate your performance via exam or quiz at any point during this boot camp.
 - However, if there are practice questions that we don't have time to get to in lecture, I encourage you to work on these problems on your own (or discuss it with other students in the class).
 - If you have any question, feel free to stop by my office hours.
 - **After each lecture, I will post the solution to all practice questions on that lecture's worksheet.** You should see the solution posted before 3pm on the lecture day at the latest.
- Overall, this boot camp is designed to help you get ready for your first-year statistics courses. Thus, **please don't hesitate to ask question during lectures, or stop me at any point if I'm going too fast.**

Recommended textbooks:

- Moore, David S., Notz, William I., and Fligner, Michael A. 2015.
The Basic Practice of Statistics, Eighth Edition.
ISBN-13: 978-1319042578
- Keller, Gerald. 2014.
Statistics for Management and Economics, Tenth Edition.
ISBN-13: 978-1285425450
- **I do NOT require you to purchase either one of these textbooks.** They are listed here as additional resource for you to check out. The important content from these textbooks are incorporated into each lecture’s worksheet.

Course schedule:

- All lectures and office hours take place at **SSW 220**.

8/22 Mon Lec 1 10a - 11:30a	8/23 Tue Lec 2 10a - 11:30a	8/24 Wed Office Hour 11:15a - 12:15p	8/25 Thurs Lec 3 10a - 11:30a	8/26 Fri Lec 4 10a - 11:30a
8/29 Mon Lec 5 10a - 11:30a	8/30 Tue Lec 6 10a - 11:30a	8/31 Wed No class	9/1 Thurs No class	9/2 Fri Office Hour 8:45a - 9:45a Lec 7 10a - 11:30a
9/5 Mon No class (Labor Day)	9/6 Tue Lec 8 (Last Day) 10a - 11:30a			

- Topics covered in each lecture:

Lec	Topics Covered	Moore Chapter(s)	Keller Chapter(s)
1	Types of Data Population vs. Sample Parameters vs. Statistics Descriptive statistics vs. Inferential statistics Intro to common descriptive statistics	1, 2	1, 4
2	Intro to common descriptive statistics (cont'd) Sampling techniques	1, 2, 4, 8	4, 5
3	Probability	12, 13	6
4	Random variables Population distributions	3, 14	7, 8
5	Sampling distributions	15	9

(Table cont'd)

Lec	Topics Covered	Moore Chapter(s)	Keller Chapter(s)
6	Hypothesis testing	16, 17, 18	11
7	Inference on one population (z-score and t-score) (If time) inference on two populations	20, 21, 22, 23	12, 13
8	Practice using STATA and R	-	-