

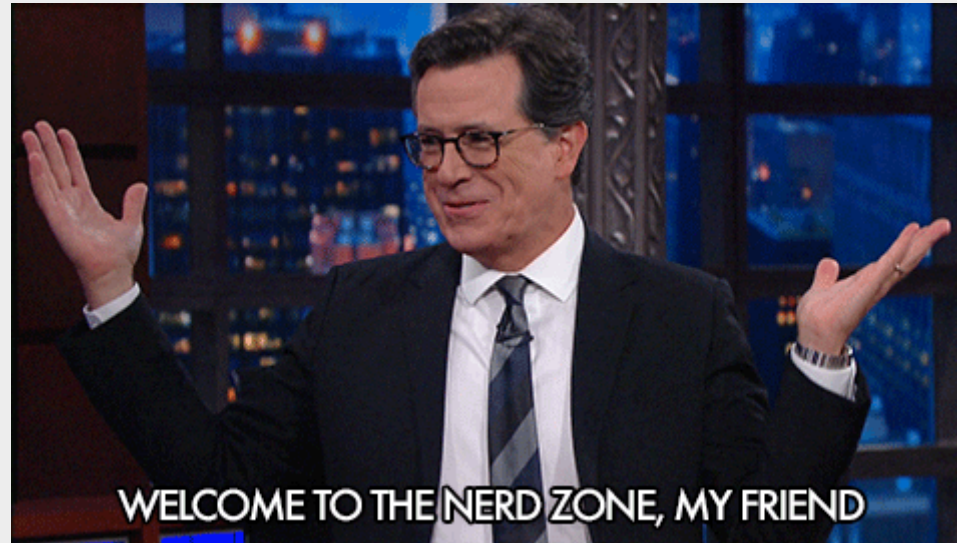
EPI 560: Some Preliminaries





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Meet the TAs

Leah



Ani



Course Content

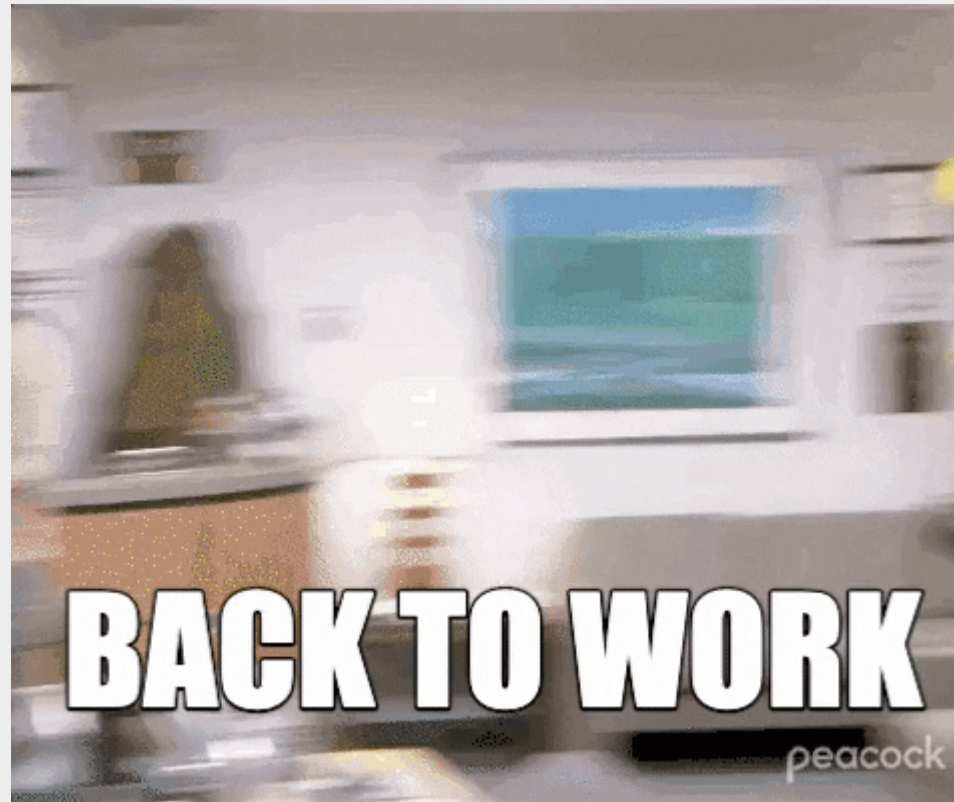
Five Sections:

1. Cohorts and Survival: Cohort and Timescale, Censoring and Truncation, Risk Functions, Kaplan-Meier Estimator, Competing Risks.
2. Causal Inference: Correlation and Causation; Introduction to Causal Inference; Potential Outcomes; Estimand, Estimator, Estimate; Identifiability.
3. Regression Modeling: Standard and Survival Regression, Marginal versus Conditional Models, Distributions and Link Functions, Marginal Standardization.
4. Time-Varying Data & g Methods: Longitudinal Data, Complex Longitudinal Data, Time Varying Confounding, Inverse Probability Weighting, G Computation, G Estimation of SNMMs.
5. Variance (standard error) estimation, Bootstrapping, p Values, and Confidence Intervals.

Course Grading

- Section Assignments: 40%
- Analysis (Take Home) Project: 30%
- Final (Take Home) Exam: 30%

Course Considerations: COVID



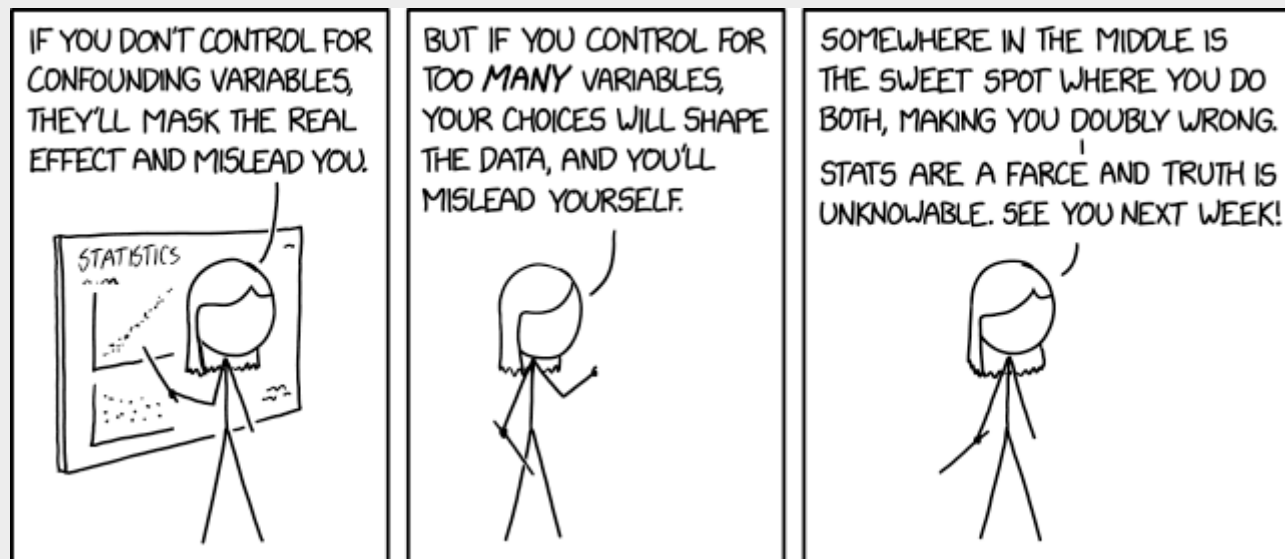
Course Considerations: COVID

December 28 2021

... to continue all aspects of our academic mission, undergraduate, graduate, and professional courses will start the spring semester in a remote format, Classes will transition back to in-person learning on January 31, should conditions permit.

President Gregory Fenves

Course Considerations: My Teaching Philosophy

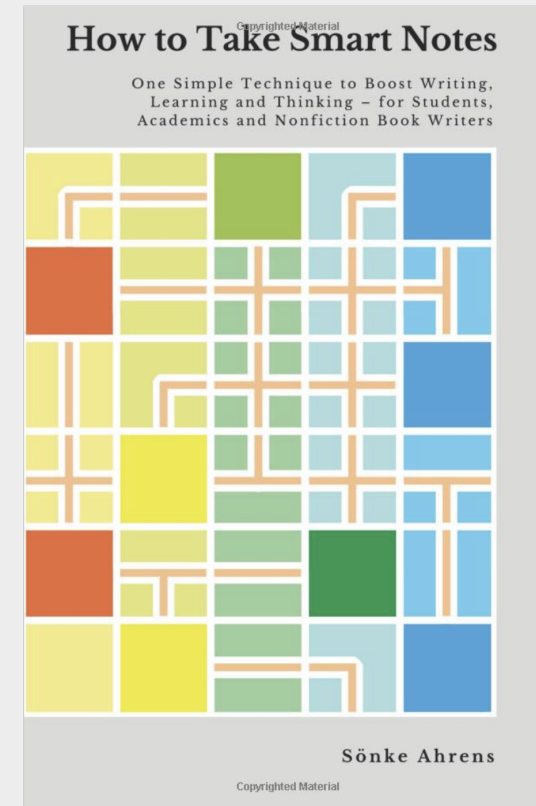
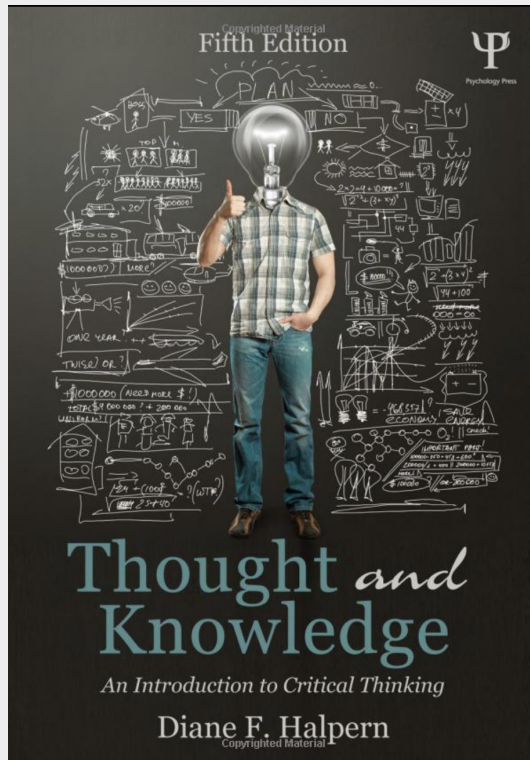


Course Considerations: My Teaching Philosophy

- My goal: discourage adversarialism and foster mutualism in the classroom.
- My goal: promote a non-judgemental environment in which students comfortably **reveal their** strengths and **limitations**.
 - Have you ever thought about different types of questions you can ask?: [A Typology of Questions](#)
- My view: don't just read. *Understand!*
 - You should really consider watching this [video](#)
- Your goal: quickly and clearly articulate concepts succinctly and precisely, recognize and elaborate on nuances, and proficiently implement technical (coding) procedures in practical settings.
 - Have you watched the [video](#) yet?
- Major point we will not cover: practical (analytic) dimensions of any rigorous scientific approach cannot be separated from context. *Context matters.*

Course Considerations: How to Learn

Generally, there are incredible tools at your disposal that can facilitate learning. Two of my favorites:



Course Considerations: How to Learn

Much of the course content will be anchored in or associated with *code*.

- use it
- explore it
- break it
- fix it
- re-write it
- improve it

R and General Coding Considerations

Get the most recent version of R. For Windows and MacOS, install one of the *precompiled binary* distributions (i.e., ready-to-run programs) linked at the top of the R Project web page.

www.cloud.r-project.org

Once R is installed, download and install R Studio, an "Integrated Development Environment" (IDE). It is a front-end program that enables us to use R more efficiently and effectively.

www.rstudio.com

Install the tidyverse and other add-on packages for R. These will enable you to run the code provided in the course.

www.tidyverse.com

R and General Coding Considerations

To install the tidyverse and other related packages, you need an internet connection and have to run RStudio. Type the lines into R's command prompt, located in the window named "Console." In the code on the side, the ← is made up of two keystrokes: first < followed by a short dash, -.

The code below should be a good starting point for the course.

```
packages <- c("tidyverse", "skimr", "here", "remotes", "boot", "survival", "GGally",  
             "gridExtra", "rlang", "haven", "broom", "Hmisc", "gmm", "VGAM", "sandwich", "lmtest")  
  
install.packages(package, repos = "http://cran.rstudio.com")
```

If you run into trouble ...

what will you do once you've graduated and you run into trouble?

Course Logistics

Email:

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Join the Slack Channel: [click here](#)

Please use Slack for all relevant class communication/questions. If you would like to ask a question anonymously, use the "/anonymous " argument before your question.