

**Maximum Likelihood Methods for the Social Sciences**  
**POLS/CSSS 510**  
**Autumn 2023**  
**Section Syllabus**

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**Lab Sections**

Fridays 3:30 – 5:20 pm in zoom

**Office Hours**

By appointment in zoom

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**Overview.**

Sections complement the lectures by reviewing lecture materials, addressing assignment questions, and focusing on programming and statistical analyses in R. We meet once a week on Fridays, from 3:30 pm to 5:20 pm, and these sessions will be conducted online via zoom. All lab materials can be found on the course website, including Zoom recordings of each lab section.

I will be available for general/public office hours after the labs. In addition, I also offer office hours by appointment via Zoom. Please note that it may take up to 24 hours for me to respond to a student's email, so it is a good idea to plan ahead and email me in advance, especially as the end of the quarter approaches. When you email me, please include (1) the topic you'd like to discuss and (2) your availability for scheduling a meeting.

**Homework Submission.**

Please submit your homework in PDF. There will be five homework assignments due on the following dates: October 11th, October 25th, November 8th, November 22nd, and November 29th. Please submit these assignments on Canvas. Ensure that your homework is typed in LaTeX, using either Overleaf or R Studio with

R Markdown. You must upload your PDF file in the following format with no whitespaces:

File name with three elements: (CSSS569)(HWn°)(NameSurname)  
e.g.: CSSS569HW1RamsesLlobet

### Section Schedule.

Below is the tentative schedule of lab sections and the associated topics and materials, which are subject to adjustment depending on our progress and learning needs:

Week	Topic	key words
1	Course logistics and R review	R basics, tidyverse, analysis
2	RMarkdown and Overleaf	LaTeX, knitting PDF
3	Heteroskedastic Normal	MLE, optim, simulations
4	Binary Model: Quantities of Interest	Logit, probit, glm, simcf
5	Binary Model: Goodness of Fit	PCP, ROC, Cross-validation
6	Ordered Probit	polr, ropeladder
7	<i>Veterans Day</i>	No lab
8 <sup>a</sup>	Multinomial Logistic	mlogitsimev, mlogitsimfd
9	<i>Thanksgiving; NA Heritage Day</i>	No lab
10	Count Data	zeroinfl, poisson, nb
11	TBD	TBD

<sup>a</sup> This week, the lab will be held on Thursday, the 16th, at the usual lecture time, and the lecture will take place on Friday, the 17th, at the regular lab time.

### Programming Assistance.

Our most preferred communication channel is slack. Please post your coding questions to the coding-questions channel related to R programming and debugging.

When you post a question, the best practice is to create a *minimal, reproducible example* instead of pasting hundreds of lines of code, or taking a screenshot of your

R console without any context. The idea is to use the fewest lines of code and all prerequisite objects (e.g. a small subset of your dataframe, or a fake dataset that resembles it) for others to reproduce the error message (or unexpected outcome) you encounter. See the instruction [here](#) and [here](#). Alternatively, please feel free to come to my office hours for further consultation.

#### **Additional Resources.**

If you are looking for a dataset for your project, make use of research data repository such as Harvard Dataverse, or generic search engine such as Google Dataset Search. In addition, TidyTuesday project offers many interesting datasets with coding examples by community members, and is being updated weekly.