Literature Proseminar (STATS 810, Fall 2020)

Friday 9-10am, 268 Weiser Hall and synchronous online.

Instructor: Edward Ionides **Course web site**: `ionides.github.io/810f20/`

The first 8 weeks of Stat 810 will focus on responsible conduct of research and scholarship (RCRS). Instruction in RCRS is required by both the National Science Foundation (NSF) and the National Institutes of Health (NIH). To satisfy this federal legislation, the University of Michigan requires certification of 8 hrs of classroom discussion on RCRS for all PhD students (http://research-compliance.umich.edu/responsible-conduct-research-rcr-training#). There will be a short weekly writing assignment so that we are all prepared in advance for each discussion.

Certification of RCRS instruction is required for all PhD students and postdocs., since most PhD students and postdocs will at some point be working on federally funded projects. In order to achieve certification, attendance and participation of students is required. Therefore, for the first 8 weeks of 810, it will be necessary to check attendance. The first class of 810 will discuss why RCRS instruction has been mandated, and this would be an appropriate time to raise any concerns you might have about whether RCRS instruction is a worthwhile use of your time. If you cannot be present at class, please contact me: we can arrange a substitution which will involve a writing assignment together with a make-up attendance requirement. If you cannot complete the weekly writing assignment before class, we can arrange a make-up writing assignment.

After completion of the RCRS component, the remaining classes will discuss various issues related to statistical computation: Unix and Linux, parallel computation (the Great Lakes cluster), R and Python, Latex, reproducible statistical research (knitR, Rmarkdown, Jupyter), communicating statistical methodology (R packages).

Course Outline

Sep 04	What is RCRS? Why discuss it? *[pp. 1–3]*
Sep 11	Building and maintaining healthy mentor/mentee relationships. *[pp. 4–7]*
Sep 18	Publication and peer review. *[pp. 29–38]*
Sep 25	Data and the reproducibility of research results. *[pp. 8–11]*
Oct 02	Mistakes and how to avoid them. When is a mistake negligence? *[pp. 12–14]*
Oct 09	Recognizing and responding to conflicts of interest. *[pp. 43–47]*
Oct 16	Collaborative research; human participants and animal subjects. *[pp. 24-28, 39-42, 48-49]*
Oct 23	Misconduct: Plagiarism, falsification, fabrication. *[pp. 15-23]*
Oct 30	Statistical computing workflows using Linux/Unix, git, R/Python, Latex.
Nov 06	Topics in statistical computing (to be decided).
Nov 13	Topics in statistical computing (to be decided).
Nov 20	High performance and parallel computing; using the Great Lakes cluster.
Nov 27	THANKSGIVING HOLIDAY
Dec 04	Reproducibility in the context of statistical computing.

Reading assignments *[in brackets, above]* correspond to pages of "On Being a Scientist: A Guide to Responsible Conduct in Research: Third Edition," a publication of the National Academies of Science and Engineering and the National Institute of Medicine. The course website has a link to a free pdf copy.

COVID accommodations. The purpose of this class is to participate in discussions related to research in statistics. That will be more challenging that usual in the current circumstances. Students in class should follow UM COVID regulations, such as wearing a face covering and complying

with social distancing rules. Students attending remotely should join the class synchronously, turn their video on at all times, and mute/un-mute their audio as appropriate.

Video recordings may be made occasionally. These will not be posted publicly by the instructor. Students are also expected not to post publicly any video records of class discussions.

Grading. Participation in class and homework will be assessed non-judgmentally. The expectation is that each of us should contribute to each discussion.