STA 5168: Statistics in Applications III

Course description: This course focuses on methods for statistical inference beyond linear models and various topics which were not covered in previous courses. Topics include logistic regression for binary outcomes, logistic regression for categorical outcomes, regression models for count outcomes, generalized linear models, generalized estimating equation for correlated multivariate data, quantile regression, modeling time to event outcomes, and special topics as time permits.

Prerequisite courses: Students should possess a background that includes regression and analysis of variance models, and the statistical theory of maximum likelihood methods.

Lecture: Mondays and Wednesdays, 6:35–7:50 PM OSB 204

Instructor: Prof. Hongyuan Cao
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Office Hour: Wednesdays 2:00-3:00 PM or by appointment in OSB 319

TA: Xiaoyi Wang
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Office Hour: Mondays 2:00-3:00 PM or by appointment in OSB 210C

Class Website: https://canvas.fsu.edu

Textbook: We do not have a textbook for this course

References: A book written by Prof. Peng Ding which has not been published. I'll post it on canvas.

Software: The examples in this course will use the R programming language, available at www.r-project.org. See also www.rstuidio.com for a nice development environment. For your homework, there is no restriction on the software that you use. For an introduction to R, see http://data.princeton.edu/R/ (if you have no experience with R, I would recommend going through this in its entirety.) Also see http://www.cookbook-r.com for instructions on how to carry out some common tasks in R.

Homework: The homework assignments will be posted regularly. You are encouraged to discuss with each other, but should write down the answers independently. Please also indicate your collaborators if you discuss with other people.

Exams: There will be one midterm exam (Oct 31, 2022 in class). Students will present research papers and/or a take home final project.

Final grade: It will be determined by a weighted average of the following items: (1) homework 40%, (2) midterm exam 30%, (3) final project 30%.

Course Policies

- Classroom policies: The classroom environment is an important factor for effective learning. In order to not distract other students' attention please follow these classroom policies. The first one of these is the university policy. Remember that no food or drinks are allowed. Turn off all audible alarms (cell phones, pagers, calculators, watches etc.) Do not use cell phones in the class. Come to the class on time.
- Attendance: You are required to attend all classes. The class activities will help you assimilate the lessons more easily, giving you an opportunity for active learning. Do not let this opportunity slip away. Any foreseen absence must be cleared with the instructor. If the absence is due to emergencies, it is the student's responsibility to notify the instructor at the earliest opportunity of the emergency.
- Homework and exams: Homework is due at the beginning of the class. It is the student's responsibility to retrieve his or her homework/exam whenever they are returned and to check grades on the class website. If you notice any mistake in recording grades, please inform the instructor about it as soon as possible but no late than one week from grades been posted online.
- Contacting the instructor outside the class: You are strongly encouraged to come to the instructor during the office hours. If your schedule conflicts with the office hours, you can make an appointment. You may ask the instructor brief questions by e-mail, but you may be asked to come to office hours if the instructor thinks that the questions are better answered this way. When you send e-mails remember the following: always send e-mails from your FSU accounts. The e-mails from non-FSU accounts may not reach me due to filters. Always write your full name at the end of each e-mail message you send.
- Academic honor policy: The Florida State University Academic Honor Policy outlines the University expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to "… be honest and truthful and … [to] strive for personal and institutional integrity at Florida State University." (Florida State University Academic Honor Policy)
- Students with disabilities: Students with disabilities in need of academic accommodation should: 1. Register with and provide documentation to the Student Disability Resource Center; 2. Bring a letter to the instructor indicating the type of accommodation needed. This should be done during the first week of class. See https://dos.fsu.edu/sdrc/ for more information.