STA 5168: Statistics in Applications III
Tu/Th 12:30PM — 1:45PM, Room: OSB 110

Instructor: Dr. Antonio Linero, OSB 201E.
Office Hours: 2:00PM — 3:00PM Tue/Thu, or by appointment.
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Teaching Assistant: Zihan Cui, OSB 204 (the library)
Office Hours: 12:45 – 1:45 Mon/Wed, or by appointment.
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Prerequisites: Students should possess a background that includes regression and analysis of variance models, as well as the statistical theory of maximum likelihood methods.

Course Website: Course website is available through Blackboard: `campus.fsu.edu`.

Textbook: *Categorical Data Analysis*, 3rd edition. This text will be used to supplement the lecture and to provide homework exercises.

Software: The examples in this course will use the `R` programming language, available at `www.r-project.org`. See also `www.rstudio.com` for a nice development environment. For your homework, there is no restriction on the software that you use, but I will not be able to help you with software other than `R` (do not ask me how to do homework in `SAS`, `matlab`, etc). 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`.

Course Topics: This course will primarily focus on methods for statistical inference for discrete or ordinal data, as well as miscellaneous topics in applied statistics which were not covered in previous courses. Topics include:

- Inference in two-way and muti-way contingency tables.
- Generalized linear models.
- Logistic regression for categorial data.
- Quasi-likelihood and Estimating Equations.
- Methods for clustered data.
- Penalization.
- Nonparametric methods for discrete and continuous data.
- Special topics as time permits.

Homework: Homework will be posted on the Blackboard website in the Course Library, along with the readings of the textbook. Unless otherwise noted, homework will be collected each Thursday at the beginning of class and a random subset of the assigned problems will be graded. Students may work together to discuss homework, but each student must write up their own solution in their own words. Solutions copied verbatim from another students homework will constitute an honor code violation and will not receive credit.

Exams: There will be three exams. You will be permitted to bring a one-page formula sheet. The formula sheet **must be handwritten and easily readable to the naked eye**, and may contain formulae, facts, definitions, and theorems, **but may not include any worked examples**. Students are also permitted the use of a scientific calculator. The material covered and general exam policies will be discussed in class. The **tentative** dates are:

Exam 1 ..... Thursday, September 28th
Exam 2 ..... Thursday, November 2nd
Exam 3 ..... Wednesday, December 13rd, 7:30–9:30 am

Grading: Your grade for the semester will be determined from scores on the homework (25%) and on the three exams (25% each). Grade cutoffs will be established at the end of the course, but will not be stricter than the following cutoffs.

- $\geq 94\%$: A;
- $\geq 90\%$: A-;
- $\geq 87\%$: B+;
- $\geq 83\%$: B;
- $\geq 80\%$: B-;
- $\geq 77\%$: C+;
- $\geq 73\%$: C;
- $\geq 70\%$: C-;
- $\geq 67\%$: D+;
- $\geq 63\%$: D;
- $\geq 60\%$: D-;
- $< 60\%$: F;