

## STA5238, Applied Logistic Regression

**Instructor:** Dr. Dan McGee (dmcgee@fsu.edu )

**Grader:** See course Blackboard page.

**Contact Information:** All information on the instructor and TA/Grader is posted on Blackboard (**Instructor Info tab**).

**Course Materials:** All course materials are online, the course Blackboard page provides a link to all course materials.

**Important Dates:** The due dates for all homework and the midterm projects will be posted on the assignments content area on the course Blackboard page.

**Textbook:** There is no required text. The following books are good resources. I use material from both (and other sources).

D. Hosmer, S. Lemeshow, and R. Sturdivant. Applied Logistic Regression, third edition. 2013, John Wiley & Sons, Inc., Hoboken, NJ.

P. Allison. Logistic Regression Using SAS. Theory and Application, second edition. SAS Institute Inc. Cary, NC

**Accessing SAS Software:** This course is counted for credit toward SAS certification, so we will make extensive use of SAS. Knowledge of SAS (as presented in STA 3034 or STA 5066) will be assumed but is not required. Only a modest amount of data manipulation will be required and SAS datasets necessary to reproduce classroom examples and to complete homework and midterms will be provided. All programming will be done using a browser-based interface to the SAS cloud (Details will be provided in the first lecture).

**NOTE:**

1. When using the SAS Cloud, OnDemand, maintenance is usually done on weekends so the cloud will sometimes be unavailable for part of the time on those weekends. So **do not wait until the last day** to do homework assignments. "The cloud was unavailable," is not an acceptable reason for late submission.
2. There is a totally free version of SAS– SAS University Edition. It works via a virtual box interface. You are allowed to use this version of SAS if you wish.

**Accessing R Software:** We will also use R-software. It is totally free and can be downloaded from [www.r-project.org](http://www.r-project.org).

**Homework:** All homework must be uploaded to Blackboard. **All homework materials must be assembled into a single file and this single file should be submitted** to the assignment posted on the course Blackboard page. **The homework**

must be a Microsoft Word (.doc or .docx) or a Rich Text Format (.rtf) document.

Homework Assignments may be discussed with other students (including using social media) but each student is required to write and assemble the problems required for the homework assignment on their own.

**Homework Grading:**

Late homework will be penalized 20% and no credit will be given for homework submitted more than one week after the due date.

Questions about homework grades should be addressed to the course Grader.

**Prerequisites:** Previous background in statistics at least through linear regression or permission of the instructor.

**Online Resources for SAS:**

Good introductions to SAS, R, and other statistical software are at the UCLA Academic Technology Services Website.

<http://www.ats.ucla.edu/stat/>

Youtube resources:

1. search "SAS Analytics U" SAS has a reasonable number of professionally done tutorials.
2. Search "SAS Tutorial" You will get lots of hits to tutorials provided by users of youtube
3. Search "SAS channel" SAS has a channel on youtube

**Course Description:** This course provides an applied introduction to the use of logistic regression. We will cover as many of the following topics as time permits:

1. Analytic Modeling with Logistic Regression
  - a. Modelling Binary Outcomes, Introduction to Logistic Regression.
  - b. Estimation and inference
  - c. Interpretation
  - d. Model Building
  - e. Goodness of Fit and Model Uncertainty.
  - f. The logistic model under different sampling schemes.
    - i. Case-Control Studies
    - ii. Matched Case-control studies
  - g. Multinomial Logistic Regression
  - h. Ordinal Logistic Regression

2. Predictive Modelling using Logistic Regression.
  - a. Preparing input variables
  - b. Measuring Classifier Performance
  - c. Generating and evaluating many models

**Grading:** The final course grade will be based on homework (60%), and two midterm projects (40% -- 20% each). Grades will depend on both the application and the write-up.

**Academic Honor Code:** All students are expected to uphold the Academic Honor Code. The Academic Honor System of the Florida State University is based on the premise that each student has the responsibility to:

- Uphold the highest standard of academic integrity in the student's own work.
- Refuse to tolerate violations of academic integrity in the University community.
- Foster a high sense of integrity and social responsibility on the part of the University community.

**Students with Disabilities:** Students with disabilities needing academic accommodations should do the following during the first week of class:

Register with and provide documentation to the Student Disability Resource Center.

Bring a letter to the instructor from SDRC indicating that you need academic accommodations.

For more information about services available to FSU students with disabilities, contact the Assistant Dean of Students: [sdrc@admin.fsu.edu](mailto:sdrc@admin.fsu.edu), Disabled Student Services, 08 Kellum Hall, Florida State University, Tallahassee, FL 32306-4066, (850)644-9655.