

Generalized Linear Models – STAT4188-001

Spring 2018

Mon 1:25pm - 3:20pm AUST 340

Wed 1:25pm - 2:15pm; AUST 102

Instructor: Ofer Harel <ofer.harel@uconn.edu>

Office Hours: AUST 320; Mon and Thur 9am-10am or by appointment

Grader: Yulia Sidi <yulia.sidi@uconn.edu>

Course Description

Prerequisites: STAT 3025 and STST 3115.

This course deals with statistical models for the analysis of quantitative and qualitative data, of the types usually encountered in social science, public health, biological and life sciences research. The statistical methods studied are the general linear model for quantitative responses (including multiple regression, analysis of variance and analysis of covariance), binomial regression models for binary data (including logistic regression and probit models), models for count data (including Poisson regression and negative binomial models) and models for survival data (focusing on piecewise exponential models fitted via Poisson regression). All of these techniques are covered as special cases of the Generalized Linear Statistical Model, which provides a central unifying statistical framework for the entire course.

Textbook:

1. (Required) Vittinghoff E, Glidden DV, Shiboski SC, McCulloch CE (2012). *Regression Models in Biostatistics*, 2nd Edition, Springer.
2. (Recommended) Gelman A, Hill J (2006). *Data Analysis using Regression and Multilevel/ Hierarchical Models*. Cambridge U Press.
3. (Recommended) Ramsey FL, Schafer DW, *The statistical Sleuth*. Duxbury.

Other readings may be assigned as needed. Topics and Readings

Course Material:

Lecture notes, sample code, datasets, information for homework assignments and project, etc., will be posted on the HuskyCT course website (available through <http://lms.uconn.edu>). Please visit this site often to access all the material.

The lecture notes and corresponding material will be posted on the HuskyCT course website.

Software:

- R: freely available for download at <http://www.r-project.org/>.

NOTE: UCLA's Statistical Computing website offers excellent tutorials/resources for SAS and R (and other languages): www.ats.ucla.edu/stat/.

Course Activities & Grading:

- **Homework**

- Regular homework will be assigned. Homework will consist of both writing and computing exercises. Late homework will not be accepted; however, the lowest HW score will be dropped when computing your grade.
- All homeworks are to be typed in Word or pdf documents, and submitted through the HuskyCT course website. **Students may submit each assignment only once.**
- No credit will be given for submitted assignments exhibiting duplication or copying of solutions (from peers or existing solutions). See UConn's Academic Integrity policy below.

- **Participation:** We will have “active learning” in the classroom via discussion, Q&A, and problem solving. You must read the material (reading from the text VGSM) before coming to class, and participate.

- **Course project:** There will be one course project that will consist of a sequence of data collection (from interesting websites/sources), analysis and interpretation. A project proposal will be due by 11:59pm, March 7, 2018, and the final report will be due by 11:59pm, April 18, 2018. You may discuss with the instructor about the detailed plan of your course project. The typed course project proposal and typed final report are to be submitted to the instructor via email directly by the due date.

- There will be one mid-term exam and one final exam. The date for the mid-term exam will be posted on HuskyCT. The final exam will be given during final exam week according to the school scheduled date.

The grades will be assigned as follows:

Homework Assignments	20%
Participation	10%
Course Project	15%
Mid-term Exam	25%
Final Exam	30%

This grade assignment requires a passing grade in each exam, else the final course grade is up to the discretion of the instructor. In order to obtain a good course grade, students must successfully complete all homework assignments, the course project, the mid-term exam, and the final exam; attend every lecture; and actively participate in class.

Important Dates

Tuesday, Jan. 16. Spring semester begins

Monday, Jan. 29. Courses dropped after this date will have a W for withdrawal

Sunday, Mar. 11. Spring recess begins

Saturday, Mar. 17. Spring recess ends

Monday, Mar. 26. Last day to drop a course

Friday, Apr. 27. Last day of Spring semester classes

For the complete spring semester schedule, see <http://registrar.uconn.edu/academic-calendar/spring-2018/> recorded on the academic record.

The **Center for Students with Disabilities (CSD)** at UConn provides accommodations and services for qualified students with disabilities. If you have a documented disability for which you wish to request academic accommodations and have not contacted the CSD, please do so as soon as possible. The CSD is located in Wilbur Cross, Room 204 and can be reached at (860) 486-2020 or at csd@uconn.edu. Detailed information regarding the accommodations process is also available on their website at www.csd.uconn.edu.

Academic Integrity: A fundamental tenet of all educational institutions is academic honesty; academic work depends upon respect for and acknowledgement of the research and ideas of others. Misrepresenting someone else's work as one's own is a serious offense in any academic setting and it will not be condoned. Academic misconduct includes, but is not limited to, providing or receiving assistance in a manner not authorized by the instructor in the creation of work to be submitted for academic evaluation (e.g. papers, projects, and examinations); any attempt to influence improperly (e.g., bribery, threats) any member of the faculty, staff, or administration of the University in any matter pertaining to academics or research; presenting, as one's own, the ideas or words of another for academic evaluation; doing unauthorized academic work for which another person will receive credit or be evaluated; and presenting the same or substantially the same papers or projects in two or more courses without the explicit permission of the instructors involved. A student who knowingly assists another student in committing an act of academic misconduct shall be equally accountable for the violation, and shall be subject to the sanctions and other remedies described in The Student Code.