

# STAT 4188: Generalized Linear Models

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## Instructor

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Office Hours: Mon/Thur 9:00–10:00

## Overview

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.

## Approach:

The emphasis of this course is on understanding and applying statistical concepts and techniques, rather than proving theorems. However, the course assumes familiarity with basic concepts in probability theory, statistical estimation and testing theory, and statistical methodology up to multiple regression analysis (STAT 3025 and STAT 3115). Applications to real data from a variety of studies in public health and clinical research are used throughout the course to illustrate the material. Students also work with statistical software on a weekly basis.

## Pre-requisites

STAT 3025 and STST 3115.

## Requirements:

Course requirements consist of required readings, problem sets, project, and two exams (mid-term and final). Most of the material of the course is covered in formal lectures. Final grades are calculated as a weighted average of the grades received during the term.