

## Some regression topics

math612.0 From numbers through algebra to calculus and linear algebra

Gunnar Stefansson (editor) with contributions from very many students

August 28, 2018

# Poisson regression

Data  $y_i$  are from a Poisson distribution with mean  $\mu_i$  and  $\ln \mu_i = \beta_1 + \beta_2 x_i$ . A likelihood function can be written and the parameters can be estimated using maximum likelihood.

# The generalized linear model (GLM)

Data  $y_i$  are from a distribution within the exponential family, with mean  $\mu_i$  and  $g(\mu_i) = x_i\beta'$  for some link function,  $g$ . A likelihood function can now be written and the parameters can be estimated using maximum likelihood.