

## Some regression topics

math612.0 A1: From numbers through algebra to calculus and linear algebra

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# 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  $g(\mu_i) = \mathbf{x}_i' \boldsymbol{\beta}$  for some link function,  $g$ . A likelihood function can now be written and the parameters can be estimated using maximum likelihood.

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