**INTERACTION PRACTICAL: Logistic regression**

Generate data on gender admission patterns into a school’s departments A to F using the following code:

data.logistic = data.frame(gender=rep(c("Male","Female"),c(6,6)), dept=rep(LETTERS[1:6],2),yes=c(512,353,120,138,53,22,89,17,202,131,94,24),no=c(313,207,205,279,138,351,19,8,391,244,299,317))

1. Model the admission probability using a logistic regression with an interaction. The codes below will help in this:

mod.form = "cbind(yes,no) ~ gender \* dept"

glm.out = glm(mod.form, family=binomial(logit), data=data.logistic )

summary(glm.out)

1. Where possible, interpret all the model coefficients. May use the code :

exp(coef(glm.out)) to obtain the odds ratios.

1. Fit a model without an interaction term. Use Likelihood Ratio Test to check the need for interaction term.