Lab Session 4

Outline of lab session:

- brief tutorial of Minitab's logistic regression menus (using the `mice` and `nocardia` datasets),
- (tentative time: 3:00) class discussion/review of VER:15 (Q11) and VER:16.1,
- individual work on the exercises:

  VER:16.1; add4:3, 1; add2:11, 12 (VER:15, 16.2; add2:8) — recommended order (optional problems in parenthesis),
- use Stata or Minitab, or both, as you prefer,
- lots of time for individual discussion (lecture topics, software details, home assignments etc.).

Notes for specific exercises:

- extra "Additional Exercises for Session 4: Logistic regression" (you may skip/postpone the parts on goodness-of-fit and diagnostics),

3: logistic two-factor design; two data formats (grouped, ungrouped with frequencies), see solution files.

1: logistic regression with single quantitative predictor,

- extra linear modelling exercises (Exercises 11, 12 (8) for Session 2).

Logistic Regression in Minitab 21

Two menus (under `Stat-Regression`):

- simple Binary Fitted Line Plot menu (one continuous predictor),
- main analysis menu:
  `Stat-Regression-Binary Logistic...`

Notes on setup and options:

- choice between binary and grouped data formats,
- similar menu layout as for linear models, e.g. derived terms (interactions, polynomials) are defined in the Model submenu,
- ANOVA table-like layout of tests (either Wald or likelihood-ratio, deviance $\sim -2 \ln L$).

Features to be discussed later in course (lectures 4b and 5a):

- model fit statistics: R^2, AIC etc., ROC curve,
- diagnostic plots and statistics, with some similarity to linear models, but based on *covariate patterns*,
- Hosmer-Lemeshow goodness-of-fit test for ungrouped data.