MATH 3080: Assignment No.7 (final project)

Complete your own report for Problem 2, and upload the completed report here by the submission deadline. A revision of report after the submission deadline will not be considered.

1. (Sample report problem) A study tried to examine the relationship between exposure time (years) and degree of disease (normal or disease).

The data set (https://vps63.heliohost.us/e-stat/DALS/coalminers.csv) is available under the title “Textbook Data Sets” → “Pneumoconiosis among coalminers.”

Study Questions:

* 1. Consider the logistic regression model for the risk of pneumoconiosis in coalface workers, examine the model, and state the estimates.
  2. What is the effect (in terms of odds ratios) of a doubling of exposure time, say 20 years to 40 years?
  3. What is the estimated probability that a coalminer with an exposure time of 30 years is diseased?
  4. How many years of exposure gives a 50% chance of having developed the disease?

1. Data from 189 infants were collected in order to study risk factors for low birth weight (Hosmer and Lemeshow, 1989). The researchers are interested in whether low birth weights depend her smoking habits during pregnancy as well as the mother's race. Follow the guideline of statistical report writing, and complete your own analysis.

The data set (https://vps63.heliohost.us/e-stat/DALS/birthwt.csv) contains a total of 10 variables:

low is an indicator for low birth weight. It is low if the birth weight is less than 2500 grams; otherwise, normal.

age is mother's age in years.

lwt is mother's weight in pounds at last menstrual period.

race is 1 if the mother is white, and 0 otherwise.

smoke is 1 if the mother has been smoking during pregnancy and 0 otherwise.

ptl is number of previous premature labours.

ht is history of hypertension (yes=1, no=0).

ui is presence of uterine irritability (yes=1, no=0).

ftv is number of physician visits during the first trimester.

bwt is birth weight in grams.

It is available under the title “Textbook Data Sets” → “Low birth weight.”