Course title: Introduction to general and generalized linear models: classical and Bayesian inference.

Course summary: The course content will cover a range of data modelling and analytics techniques. These will include toolboxes for general and generalized linear models, classical and Bayesian inference. Students will learn to use new knowledge of data modelling and analytics in a range of contexts and apply it using statistical software.

The course will comprise lectures and practical sessions using the R software.

Course outline:
- Simple linear regression: inference, diagnostics, confidence and prediction intervals, matrix formulation.
- Multiple linear regression.
- Two-sample t-test.
- Basic notions of hypothesis testing.
- The t-test as a General Linear Model.
- One-way analysis of variance.
- Review of the binomial distribution.
- Binary logistic regression.
- Analysis of deviance.
- The Bayesian approach to statistical inference.
- Bayesian simple linear regression.
- Bayesian multiple linear regression.
- Bayesian one-way analysis of variance.
- Bayesian logistic regression.

Total number of hours: 20 hours.

References: