Course Outline

Applied Regression Analysis

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This is an applied course, with a focus on conceptual understanding of basic statistical concepts, models, and methods, as well as applications to real data. Applications will be mainly in the areas of industry engineering and medical studies. No prior knowledge of statistics is required. Software R will be introduced and used in class.

Tentative topics are (the topics are subject to adjustments, depending on the interests of the audience)

- Introduction to basics statistical concepts, methods, and models.
- Introduction to statistical software R.
- Introduction to regression models, including simple linear regression models and multiple linear regression models.
- Introduction to generalized linear models, with a focus on logistic regression models and Poisson regression models.
- Additional topics (if time permits): models for longitudinal data and repeated measurements, and missing data problems.

References

Faraway, J.J. (2004). *Linear Models with R*, Chapman and Hall/CRC; 1 edition.

Wu, L. (2014). Lecture notes on linear and generalized linear models. Unpublished (will be provided in class).