

University of Toronto

Department of Computer & Mathematical Sciences

STAB57: an Introduction to Statistics

Syllabus

taught by Louis de Thanhoffer de Volesey

[-email me](#)

[-website](#)

Office: IC 469

Phone: (416) 208.2783

Warning:

The following is a very tentative schedule for the coming 12 weeks. As this is the first time I am teaching STAB57, the schedule involves quite some guesswork..For more accurate information, please refer to the lecture summaries on the [course website](#)

The information on this syllabus is subject to change

Week	Section Number	Summary
1	§5.1	Course information. What is statistics? (informally)
2	Chpt 1-4,	Review of the necessary probability theory. A rundown of the important distributions.
3	§5.2-5.5, §6.3	The principle of statistical inference: inferring characteristics and observations. Generalities on inference: the MSE, bias, consistency, confidence intervals, examples. Heuristic inference: descriptive statistics.
4	§6.1-6.2	Introducing likelihood inference,. Data-reduction: sufficient statistics. Maximum likelihood estimation. Examples.
5	§6.3.1-4	Likelihood inference as inference using the MLE: t- and z-confidence intervals, p-values, inferring the variance. Q&A session for midterm prep
6	§7.1, 7.2.1	The definition of a Bayesian model: the prior probability. The posterior probability. Bayesian inference: MLE on the posterior
7	§7.2.2 7.3	More on Bayesian inference: credible intervals, Bayes factors, prediction.
8	§10.1.1, 10.3.2, extra notes	Introducing regression: simple and multiple. The MLE interpretation vs the least squares interpretation. The solution to the simple regression problem
9	§10.3.4, extra notes	The solution to the multiple regression problem via the Moore-Penrose inverse. Regression via gradient descent.
10	extra notes	Logistic regression and applications of regression in machine learning.
11	§10.3.2	Testing the accuracy of the regression: the F -statistic, R^2 -score anova table.
12	overview	Tying the course together. Q& A in preparation of the final.