

(—; 3-0-1)	Probability and Statistics for Civil and Mining Engineers	STAT-267*
(—; 3-0-2)	Engineering Data Analysis	STAT-367*

Measurements on engineering systems are subject to fluctuations which can only be satisfactorily characterized by statistical methods. This course discusses modern procedures for interpreting process operating data and experimental test data. Particular attention is devoted to the concepts of random and systematic behaviour in data. This course is designed to provide useful insights into several aspects of data analysis for those students who are limited to a one-term course in this general subject area. At the same time it is hoped that sufficient stimulation will be provided for those who may wish to undertake further study in this field.

Textbook: *Engineering Statistics*, 3rd Edition
by Montgomery, Runger, Hubele (Wiley and Sons)

Prerequisite: APSC-171* and APSC-172*.

Exclusion: STAT-266*.

Instructor: C. Molson

Evaluation:	Final Examination	60%
	Midterm Examination	30%
	Assignments	10%

Outline:

Exploratory data analysis – graphical and statistical analysis and presentation of experimental data. Random sampling. Probability and probability models for discrete and continuous random variables. Process capability. Normal probability graphs. Sampling distribution of means and proportions. Statistical Quality Control and Statistical Process Control. Estimation using confidence intervals. Testing of hypothesis procedures for means, variances and proportions – one and two samples cases. Linear regression, residuals and correlation. ANOVA. Use of statistical software.