

Statistics 327

Environmental Statistics

(see Course Descriptions for the applicable academic year: <http://www.ucalgary.ca/pubs/calendar/>)

Syllabus

<u>Topics</u>	<u>Number of Hours</u>
Data collection, summarizing data, frequency distributions, relative frequency and probability, cumulative frequency and probability, means (averages), variances, standard deviations, (mean and standard deviation for grouped data)	3
Graphical displays of data (dot plot, stem and leaf diagram, ie Chart, bar graph, histogram) ranking data, quartiles, IQR, percentiles, box and whisker plot, introduction to probability	3
Probability, addition rule, Conditional probability, independence, Bayes' Rule, factorials, permutations and combinations	3
Bayes' Rule, Binomial and Poisson Distributions	3
Empirical Rule (normal curve), standardizing, normal approximation to Binomial, Central limit theorem	2
Determining required sample size for a population proportion, Confidence interval for a population mean (large and small samples), t-distribution, determining required sample size for a population mean	3
Scientific method, p-values, Type I and Type II error, selecting analyses and t-test, z-test for one population proportion z-test, t-test for one population mean, paired data F-test, Two independent samples pooled and non-pooled t-test	5
ANOVA, one-way multiple pooled t-tests, two-way ANOVA, ANOVA two-way replication. Tukey post hoc test for one-way ANOVA	4
Non-parametric tests for median, one-sample Wilcoxon, Paired Wilcoxon, Mann-Whitney, Kruskal Wallis, Freidman	2
Chi-square goodness-of-fit test, and independence test	2
Yates correction, Fisher exact test, standardizing proportions, Confidence interval for difference in two population proportions	2
Correlation and Regression	2
TOTAL	34

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