

LANGARA COLLEGE
STAT 1124: COURSE OUTLINE (200930)

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Be sure to check your Mylangara email daily for course related late breaking announcements.
Office Hours:

Classes: MTWR 1230-1320 in B153

The Mathematics & Statistics Department homepage is www.langara.bc.ca/mathstats.

Text: *The Basic Practice of Statistics*, 5th edition by David Moore.

Supplements: Stat 1124 and Stat 1127/1128 Supplementary Material;
StatGraphics Manual: *An Introduction to StatGraphics Centurion XV*

References: *Statistics* by Freedman, Pisani, and Purves
Statistics : Concepts and Controversies by D.S. Moore
Statistics, An Introduction by Goldman and Weinberg
Statistics : A Guide to the Unknown by Tanur et al
Understanding Survey Sampling by Satin and Shastry

These reference materials are on reserve in the library (on a one-day loan).

Transfer credit: UBC: Stat 203; SFU: Stat 203 - Q (or a student may request for Stat 101 - Q or Stat 201 - Q);
U.Vic: Stat 100-level (1.5), UNBC: Math 242

Prerequisite: Math 11 or C- in Math 1150. Students with Intro Math 11 or Math 11A or graduates of Langara's Math 1101 will need to write the Statistics Diagnostic Test and require the permission of the Statistics Coordinator.

Objectives: To introduce statistics and some basic statistical methods, first by developing an intuitive framework, and then by analyzing real-life data. The emphasis is on understanding the ideas and applying these ideas to the analysis of data from the student's area of interest. The *StatGraphics* statistical package is used to minimize manual computations.

Learning Outcomes: Upon completion of this course, the successful student should be able to

- describe sampling designs and discuss bias;
- describe completely randomized experiments;
- select and use appropriate procedures for analyzing single-variable and two-variable data, interpret results of statistical procedures, and write a report summarizing the study's design, procedures and findings;
- solve basic problems in probability;
- carry out basic tests of significance and calculate and interpret confidence intervals.

Marking Scheme:

Final Exam (2 hours)	40%
Term Tests (2)	40%
Term Project	10%
Assignments, Quizzes & Attendance	10%

NOTES:

1. Students must have a calculator with a square root key (a statistical calculator may be more useful).
2. The formula sheet that comes with the text may be used in all quizzes and exams in the course.
3. The final exam will be a two-hour, closed-book exam on the whole term's work.
4. The term project is an essential part of the course. No grade above a *D* will be given to any student who does not complete an acceptable project.
5. Consistency in term's work is required; i.e. a student must obtain a grade on the final exam that is consistent with the grade for the term work in order to receive a given letter grade. In particular, the following guidelines apply:

Grade in Course	Minimal Overall %	Minimum Final Exam%
A+	96	90
A	85	80
A-	80	75
B+	77	70
B	73	65
B-	68	60
C+	63	55
C	58	50
C-	53	45
D	48	

Outline: (Order of topics may vary without notice)

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|---|---|
| 1. Producing Data using Surveys and Experiments | Ch. 8 & 9 (optional: pages 236-238) |
| 2. Exploring Univariate Data; Normal Distributions | Ch. 1, 2, & 3 |
| 3. Exploring Bivariate Data: Correlation, Regression & Residual analyses, and χ^2 Test of Independence | Ch. 4 & 5, 7; Sections I, II & III of the supplement; Ch. 7 summarizes Chs. 1-6
Ch. 6 is optional. |
| (Optional topic: A discussion of ethics in surveys and experiments, will be covered if there is time) | Commentary: pages 249-260 |
| 4. Introduction to Probability, Random Variables and Their Probability Distributions | Ch. 10; Section IV of the supplement |
| 5. Sampling Distribution of the sample mean and sample proportion | Ch. 11 |
| 6. Statistical Inference for Population Means and Proportions | Ch. 14, 15, 16 & 19.
Ch. 16 summarizes Chs. 8-15.
optional: pages 406-410, pages 508-509 |