# STATISTICS 1510 A2/B2

## Introduction to Applied Statistics
## Fall 2009

## Grande Prairie Regional College

ROOM:  Lecture:  ST1510 A2  F309  TT  8:30 - 9:50
                                     ST1510 B2  J229  TT  8:30 - 9:50
               Lab:  ST1510 AL1  A313  Wed  14:30 - 16:20
                                       ST1510 BL1  A312  Wed  14:30 - 16:20
                                       ST1510 BL2  A312  Tues  14:30 - 16:20

INSTRUCTORS:  Dr. Eric Chislett, C409, ph. 780-539-2003, echislett@gprc.ab.ca
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TEXT:  *INTRODUCTORY STATISTICS* by Prem S. Mann

CALCULATOR:  TI 84

PREREQUISITE:  Pure Math 30

TRANSFER:  UA, UC, UL, AU, CU, KUC, AUC.

ASSESSMENT:  Your final grade will be determined in the following manner:

| | | |
|---|---|---|
| Assignments | 10% | |
| Lab Reports | 15% | |
| Mid Term | 20% | Thur. Oct. 22 |
| Lab Exam | 15% | Dec. 1/2 |
| Final Exam | 40% | As per the Registrar's office |

EXAMS:  Exams will be closed book. A hand calculator will be necessary.
The formula sheet and tables as given in the textbook will be coppied
and be given to you for the exams.

MISSED EXAMS:  Students who miss the mid-term exam for a valid reason, such as
illness, will have the weight transferred to the final exam.

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## OUTLINE

Statistics 1510 is an introductory statistics course focusing on statistical reasoning and data analyses. Mathematical theory is kept to a minimum. Students have access to a computer lab and so are able to work with a variety of data sets. You will be taught in the labs how to use the statistical part of the spreadsheet EXCEL and you will learn how to make proper lab reports.

The following course outline is based on the $6^{th}$ edition of the text ***Introductory Statistics*** , by Prem S. Mann.

| | | |
|---|---|---|
| PART I | Describing Data | Chapters 1-3 |
| PART II | Probability and Probability Distributions | Chapters 4-7 |
| PART III | Inference about means and proportions | Chapters 8-10 |
| PART IV | Applications | Chapters 11-13 |
| NOTE: | Some sections in these chapters will be omitted. | |

## ASSIGNMENTS

There are 5 homework assignments for this course. The assignments will be given out during class on Tuesday and are due at the beginning of class one week later. You are encouraged to complete most assignments using Excel.

**NO LATE ASSIGNMENTS WILL BE ACCEPTED**.

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## LABORATORY PROJECTS

The Computer Labs in Statistics 1510 are designed so that you can gain experience working with realistic data sets, familiarize yourself with the use of a computer for statistical analysis, and to help you understand the course material.

This term we are using a spreadsheet software package in the labs, Microsoft EXCEL, instead of a dedicated statistics program.

EXCEL has advantages and disadvantages. The advantages are obvious; it is a popular program that many of you already have on a home computer, it is fairly easy to learn, and it is a common tool in business, in industry, and in home environments. It can also be used as a word processing package.

The disadvantages are less obvious. It is not as statistically powerful (and in some cases not as easy to use) as software specifically designed for statistical analysis. When professional statisticians are brought data in EXCEL format for consulting work, they will convert it so that it can be analyzed in a dedicated system. If you wish to be a statistician you will take further statistics courses which use dedicated statistics packages.

There are some (elementary) statistical routines that EXCEL cannot do for you. No software package is perfect.

**Completing Labs:**

There are many computer rooms throughout the college, third floor A-wing, J101, and the Library that are open daily and have EXCEL on them. Schedules of when each lab is available for general use are on the doors.

You must attend all labs as scheduled and you will complete the lab assignment and submit it during the scheduled time.

You will need to save your work from week to week. Some later labs use data from earlier labs.

**Submitting Lab Reports:**

Lab Reports are to be submitted at the completion of the lab.
Lab Reports must be in printed form. Remember to keep a back-up in either print or digital format.

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## LABORATORY PROJECTS

**Lab Topics:**

There are 12 scheduled lab periods this term. Formal Lab Reports are to be submitted for grading for Labs 2 through 10.

Date:
Sept.   8-9      Lab 0   Lab Orientation
Sept.  15-16    Lab 1   Introduction to Excel
Sept.  22-23    Lab 2   Formatting Output and Frequency Distributions
Sept   29-30    Lab 3   Data Descriptions
Oct.   6-7       Lab 4   Linear Regression and Correlation
Oct.   13-14    Lab 5   Sampling Distributions
Oct.   20-21    Lab 6   Confidence Intervals
Oct    27-28    Lab 7   Introduction to Inference
Nov.   3-4       Lab 8   Two-Sample T-Tests
Nov.   17-18    Lab 9   Probability Distributions
Nov.   24-25    Lab 10  Linear Regression
Dec     1-2      Lab 11  Lab Exam

**Due Dates and Times**

Lab Reports are to be submitted at the end of the lab period.

## NO LATE LABS WILL BE ACCEPTED.

**FORMAT OF LABS:**

1. Lab reports will include complete answers to the questions.
2. Questions are to appear in order. It is your responsibility to format your pages so as to present a properly written report. Label all answers as you would if you were hand-writing the submission. (Number all questions and label your answers so that they can be easily identified.)
3. Each page will have a heading which will include your name, ID number, date, course and section, and lab number and title. This header must be in BOLD and LARGER FONT, as per the sample of Lab #2.
4. All pages must be stapled together (paper clips, folded corners, etc., are not acceptable). All reports should be two or three pages long.
5. A sample lab report, for Lab #2, will be available in the second lab session.

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## LECTURE SCHEDULE

| Chapter | Lecture Time | Date | Topic |
|---|---|---|---|
| | 1.5 hrs | | Introduction |
| 1 | 1.5 | | Displaying Distributions with Graphs. |
| 2 | 1.5 | | Displaying Distributions with Numbers. |
| 3 | 1.5 | | Normal Distributions. |
| 4 | 1.5 | | Scatterplots and Correlation. |
| 5 | 1.5 | | Regression. |
| 8 | 1.5 | | Producing Data: Sampling. |
| 9 | 1.5 | | Producing Data: Experiments. |
| 10 | 1.5 | | Introducing Probability. |
| 11 | 1.5 | | Sampling Distributions. |
| 12 | 1.5 | | General Probability Rules. |
| 13 | 1.5 | | Binomial Distributions. |
| 14 | 1.5 | | Confidence Intervals. |
| 15 | 1.5 | | Tests of Significance. |
| 16 | 1.5 | | Inference in Practice |
| 18 | 1.5 | | Inference about a Population mean. |
| 19 | 1.5 | | Two Sample Problems. |
| 24 | 3 | | Inference for Regression. |
| 20 | 1.5 | | Inference about a Population Proportion. |
| 21 | 1.5 | | Comparing two Proportions. |
| 23 | 3 | | Chi-Squared Tests |
| 25 | 3 | | One Way Analysis of Variance. |
| Total | 37.5 | | |