

# STATISTICS 1510 A3/B3/C3

## Introduction to Applied Statistics

### Winter 2009

#### Grande Prairie Regional College

ROOM:	Lecture:	ST1510 A3	B202	TT	08:30 – 09:50
		ST1510 B3	J226	WF	13:00 – 14:20
		ST1510 C3	B302	WF	13:00 – 14:20
Lab:		ST1510 AL1	A312	Tues	14:30 – 16:20
		ST1510 AL1	A312	Mon	14:30 – 16:20
		ST1510 BL1	A313	Tues	14:30 - 16:20
		ST1510 BL2	A313	Thur	14:30 - 16:20
		ST1510 CL2	A312	Wed	14:30 - 16:20

INSTRUCTORS: Dr. Eric Chislett, C409, ph. 2003  
Thomas Kaip, J212, ph. 2963

TEXT: ***The Basic Practice of Statistics***, by D.S. Moore, 4<sup>nd</sup> Edition.

CALCULATOR: TI 83 Plus  
 For  $X \sim N(\mu, \sigma)$ , i)  $P(a < X < b) = \text{normalcdf}(a, b, \mu, \sigma)$   
 ii)  $P(X > a) = \text{normalcdf}(\mu - 10\mu, a, \mu, \sigma)$   
 iii)  $\text{Norminv}(p, \mu, \sigma)$

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/Fri, Feb 12/13
Lab Exam	15%	Apr 6/7/8/9
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 copied 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 4<sup>th</sup> edition of the text *The Basic Practice of Statistics*, by D.S. Moore

PART I	Exploring Data	Chapters 1-5
PART II	From Exploration to Inference	Chapters 8-16
PART III	Inference about Variables	Chapters 18-21
PART IV	Inference about Relationships	Chapters 23- 25
NOTE:	Some * <sup>ed</sup> sections may be omitted.	

## ASSIGNMENTS

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

Assignments must be completed in professional form, to include a title page, writing on only one side of a sheet, and be stapled. **NO LATE ASSIGNMENTS WILL BE ACCEPTED.**

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# **STATISTICS 1510 A3/B3/C3**

## **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, J131 and the Library, that are open daily and have EXCEL on them. Schedules of when each lab is available for general use is 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 should save your labs 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 of each lab.

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## LABORATORY PROJECTS

### Lab Topics:

There are 11 scheduled lab periods this term. Formal Lab Reports are to be submitted for grading for Labs 2 through 9.

#### Date:

Jan.	8-11	Lab 1	Introduction to Excel
Jan.	15-18	Lab 2	Formatting Output and Frequency Distributions
Jan	22-25	Lab 3	Data Descriptions
Jan	29-1	Lab 4	Linear Regression and Correlation
Feb	5-8	Lab 5	Sampling Distributions
Feb	26-1	Lab 6	Confidence Intervals
Mar	5-8	Lab 7	Introduction to Inference
Mar	12-15	Lab 8	Two-Sample T-Tests
Mar	19-22	Lab 9	Probability Distributions
Mar	26-29	Lab 10	Linear Regression
Apr	2-5	Lab 11	Review Lab
Apr	9-12	Lab 12	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		