University of Northern British Columbia

Math 342-3: Biostatistics

Winter 2008

Course Objectives:

This course intends to serve as an introductory course for students who need a working knowledge of statistics but do not have necessarily a strong mathematical background. Learning *Statistics* is not like doing *Mathematics*. Statistics includes the processes of problem solving, statistical thinking, data collection, obtaining numerical and graphical results and the follow-up questioning of those results. It provides techniques to quantify the ideas being investigated and to reduce the information to a numeric format in which it can be treated graphically or algebraically. Statistics is about describing the world around us. Our life experience and understanding of real-life situations in such fields as the physical, social and health sciences, business, economics and engineering form the foundation for understanding the problem. At the end of the course, you are expected to become *Statistically Literate* and to carry out statistical analysis of data at your own independently.

Instructor:

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Lectures:

M W F 3:30-4:20 in Lab 8-166

Labs:

L1: T 1:30-2:20 Lib 5-154 L2: W 1:30-2:20 Lib 5-154
L3: M 1:30-2:20 Lib 5-154

[Labs will start in the 2nd week.]

Office Hour:

M W F 2:30-3:20

Textbook:

Introduction to the Practice of Statistics (5th edition) by David S. Moore and George P. McCabe, W. H. Freeman, ISBN:0-7167-4008-7

Final Grade:

(a) Assignments (15%), (b) Pop-up Quizzes (15%), (c) Labs (20%), (d) Mid-term test (25%) (e) Final Exam (25%).

Make-up Test:

No. If mid-term test is missed for the legitimate documented reasons, final exam marks will be prorated.

Note:

1. Mid-term test will be based on Chs. 1-5 and final exam Chs. 6-12.
2. Please read and adhere to the undergraduate regulations and policies particularly on student conduct and attendance (UNBC Academic calendar 2007-08).
4. Changes in the syllabus, class/exam schedule, assignments and grading scheme may be made at the discretion of professor.
5. **If there are students in this course who, because of a disability, may have a need for special academic accommodations, please discuss with me, or contact Disability Services located in room 7-103.**

Tentative Schedule of Lectures and Activities
(May be changed if necessary)

Week	Textbook sections	Topics	Practice exercises for test and exam (Not to be submitted)
1-2	 1.1 1.2 1.3 2.1	Course policies/Outline Introduction to Statistics Displaying distributions with graphs and numbers Density curves and normal distribution Scatterplots	 1:31,37,47,59,75,77,89,91,95,113,115,119,137 2:1,3,15,17
3	2.2 2.3 2.4 2.5	Correlation Least-squares regression Cautions about correlation and regression The question of causation	2:21,29,39,45,55,63,71,81,97,103
4	3.1 3.2 3.3 3.4	First steps Design of experiments Sampling design Toward statistical inference	3:15,21,25,39,47,51,57,63,65,75,81,85,89
5	4.1 4.2 4.3 4.4 4.5	Randomness Probability models Random variables Means and variances of random variables General probability rules	4:13,15,27,39,41,49,53,59,67,81,93,95,105,107,117, 123
6	5.1 5.2	Sampling distributions Sampling distribution of a sample mean	5:1,13,15,21,25,35,37,39,59,67
7	 6.1 6.2 6.3 6.4	MID-TERM TEST Estimating with confidence Tests of significance Use and abuse of tests Power and inference as a decision	6:1,13,15,33,35,41,43,45,47,61,63,69,97,109
8	7.1 7.2	Inference for the mean of a population Comparing two means	7:9,11,13,21,31,53,59,73,83,121
9	8.1 8.2	Inference for a single proportion Comparing two proportions	8:3,11,13,21,33,45,59
10	9.1 9.2 9.3 9.4	Data analysis for two-way tables Inference for two-way tables Formulae and models for two-way tables Goodness of fit	9:9,13,15,27,35,47
11	10.1 10.2	Simple linear regression More detail about simple linear regression	10:3,23,33,35
12-13	12.1 12.2	Inference for one-way analysis of variance Comparing means REVIEW	12:1,3,5,31

Statistics videos will be shown in the class.