SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE MARIE, ON

COURSE OUTLINE

Course Title: Statistics

Code No.: Mth 255-4 Semesten Three

Programs Computer Network Technician

Author: The Mathematics Department

Date: January 1999 Previous Outline Dated: August 1998

Approved: Q . . . . O a ^ 4 y l . . ^ ^ ^ 7 ^
Dean Date

Total Credits: 4 Pierei|uisite(s): Mth 126
Substitute(s): Mth 256
Length of Course: 3 hrs Jweek Total Credit Hours: 48

statistics
Course Name

MTH 255-4
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L COURSE DESCRIPTION:

Students will study statistical thinking. Topics include descriptive statistics including graphing, measures of central tendency and dispersion, probability sampling, estimation and regression analysis. Applied problems are solved.

IL STUDENT PERFORMANCE OBJECTIVES:

The basic objectives are that the student develop an understanding of the methods studied, demonstrate a knowledge of the facts presented and show an ability to use these in the solution of problems. To accomplish these objectives, exercises are assigned. Test questions will be of near equal difficulty to questions assigned in the exercises. The level of competency demanded is the level required to obtain an overall passing average on the tests. The material to be covered is listed below.

III. TOPICS TO BE COVERED:

	Approximate Time Frame
1. Introduction	2 periods
2. Descriptive Statistics	6 periods
3. Measures of Location and Variation	8 periods
4. Probability	3 periods
5. Probability Distributions	10 periods
6. Sampling	3 periods
7. Estimation and Hypothesis Testing	12 periods
8. Linear Regression and Correlation	4 periods

IV, LEARNING ACTIVITIES:

TOPIC NUMBER	TOPIC DESCRIPTION	REFERENCE CHAPTER ASSIGNMENTS
1,0	**INTRODUCTION**	Text: Chapter 1 Read pages 2-9
	Upon successful completion of this unit, the student will be able to:	
1.1	Define and understand the nature of statistics	
2.0	**DESCRIPTIVE STATISTICS**	Text: Chapter 2 Ques: 1-8 pages 19
	Upon successful completion of this unit, the student will be able to:	Ques: 9-37 pages 27 Ques: 38-50 page 36
2.1	Understand distinction between qualitative and quantitative data	
2.2	Construct and interpret frequency distributions, bar graphs and pie charts	
2.3	Construct and interpret histograms, frequency polygons, ogives and stem and leaf displays	
3.0	**MEASURES OF LOCATION AND VARIATION**	Text: Chapter 3 Ques: 1-26 page 51 Ques: 27-57pages 63
	Upon successful completion of this unit, the student will be able to:	Ques: 58-71 page 71 Ques: 72-83 page 74 Text: Chapter 4 Ques: 1-36 page 90 Ques: 37-71 p. 101
3.1	Compute and interpret the mean, median and mode for a set of data	
3.2	Compute the range, variance, standard deviation and coefficient of variation for grouped and ungrouped data	
3.3	Use Z-scores, Chebyshev's Theorem and emplhcal rule, percentiles and quartiles.	
4.0	**PROBABILITY**	Text: Chapter 5 Ques: 1-47 page 116
	Upon successful completion of this unit. the student will be able to:	Ques: 48-95 page 126 Text: Chapter 6 Ques: 1-27 page 138 Ques; 28-62 page 149 Ques: 63-78 page 158 Ques: 79-114 page 168

IV. LEARNING ACTIVITIES (Continued):

TOPIC NUMBER	TOPIC DESCRIPTION	REFERENCE CHAPTER ASSIGNMENTS
4.1	Compute the probability of an event from outcomes	
4.2	Use rules of probability to compute the probability of events	
5.0	**PROBABILITY DISTRIBUTIONS**	Text: Chapters
	Upon successful completion of this unit, the student v^ll be able to:	Ques: 1-25 page 214 Ques: 42-60 page 228 Text: Chapters Ques: 1-26 page 261 Ques: 35-61 page 275
5.1	Understand random variables and their use.	
5.2	Understand the nature of probability distribution	
5.3	Know why and how to use the Binomial distribution	
5.4	Know why and how to use the Poisson distribution	
5.5	Know why and how to use the Normal distribution	
6.0	**SAMPLING AND SAMPLING DISTRIBUTIONS** Upon successful completion of this unit, the student will be able to:	Text: Chapter 11 Ques: 1-43 page 329 Ques: 44-58 page 341 Text: Chapter 15 Ques: 1-18 page 494 Ques: 19-37 page 507 Text: Chapter 16 Ques: 1-18 Page 532
6.1	Select random samples	
6.2	Understand the characteristics and use of sampling distributions	
6-3	Understand the Central Limit Theorem	
6.4	Use other sampling techniques	

JV. LEARNING ACTIVITIES (Continued):

TOPIC NUMBER	TOPIC DESCRIPTION	REFERENCE CHAPTER ASSIGNMENTS
7.0	ESTIMATION AND HYPOTHESIS TESTING	Text: Chapter 11
		Ques. 1-43 pages 329-335
	Upon successful completion of this unit, the student will be able to:	Ques. 44-68 pages 340-343
		Ques. 59-70 pages 348-349
		Ques. 71-94 pages 356-359
7.1	The estimation of means	
7.2	The estimation of means (small samples)	
7.3	Tests of hypotheses	
7.4	Significance tests	
7.5	Tests concerning means	
7.6	Tests concerf>ing means (small samples	
8.0	REGRESSION AND CORRELATION	Text: Chapter 15
		Ques. 1-17 pages 494-500
	Upon successful completion of this unit, the student will be able to:	Ques. 19-37 pages 507-509
		Text: Chapter 16
		Ques. 1-16 pages 532-535
8.1	Curve fitting	
8.2	The method of least squares	
8.3	Regression analysis	
8.4	Coefficient of con^ation	

VI. EVALUATION PROCESS/GRADING SYSTEM:

MAJOR ASSIGNMENTS AND TESTS
While regular tests will normally be scheduled and announced beforehand, there may be an unannounced test on current work at any time. Such tests, at the discretion of the instructor, may be used for up to 30% of the overall mark.

At the discretion of the instructor, there may be a mid-term exam and there may be a final exam, each of which can contribute up to 30% of the overall mark.

The instructor will provide you with a list of test dates. Tests may be scheduled out of regular class time.

VI. EVALUATION PROCESS/GRADING SYSTEM (cont'd):

METHOD OF ASSESSMENT (GRADING METHOD)

A+	Consistently outstanding	(90% -100%)
A	Outstanding Achievement	(80% - 89%)
B	Consistently above average achievement	(70% - 79%)
C	Satisfactory or acceptable achievement in all areas subject to assessment	(55% - 69%)
X or R	A temporary grade, limited to situations with extenuating circumstances, giving a student additional time to complete course requirements **(See below)**	(45% - 54%)
R	Repeat - The student has not achieved the objectives of the course, and the course must be repeated	(0% - 44%)
CR	Credit exemption	

The method of calculating your weighted average will be defined by your instructor. Since grades are based upon averages, it follows that good marks in some tests can compensate for a failing mark in another test.

ATTENDANCE

It is your responsibility to attend all classes during the semester. Research indicates there is a high correlation between attendance and student success.

If you are absent from class, it is your responsibility to find out what work was covered and assigned and to complete this work before the next class. Your absence indicates your acceptance of this responsibility.

Unexcused absence from a test may result in a mark of zero ("0"). Absence may be excused on compassionate grounds such as verified illness or bereavement. On retum from an excused absence, you should ask your instructor to schedule the writing of a make-up test. Failure to do so will be considered as an unexcused absence.

Make-Up Test (If applicable)

An "X" grade may be assigned at the end of the regular semester if you have met ***ALL*** of tiie following criteria;

- an overall average between 45% and 54% was achieved
- at least 50% of the tests were passed
- at least 80% of the scheduled classes were attended
- all of the topic tests were written

VI, EVALUATION PROCESS/GRADING SYSTEM (cont'd):

If you are assigned an "X" grade, you may convert it to a "C" grade by writing a make-up test on topics agreed to by the instructor. This test will be available at the time agreed to by your instructor.

At the end of the regular term, it is your responsibility to obtain your results from your instructor and, in the event of an "X" grade, to inquire when the make-up test wilt be available.

The score you receive on this make-up test will replace your original test score and be used to re-calculate your weighted average. If the re-calcutated average is 55% or greater, a "C" grade will be assigned. If the re-calculated average is 64% or less, an "R" grade wilt be assigned.

"R" and "X" Grades at the end of **the** Semester
If an "X" grade is not cleared by the specified date, it will laecome an "R" grade. Except for extenuating circumstances, an "X" grade in Math will not be carried into the next semester.

"R" Grades during the Semester
A student with a failing grade and poor attendance (less than 80% attendance) may be given an "R" at any time during the semester.

VH. SPECIAL NOTES:

Students with special needs (e.g. physical limitations, visual impairments, hearing impaimients, learning disabilities), are encouraged to discuss required accommodations with the professor and/or contact the Special Needs Office.

Advanced Standing
Students who have completed an equivalent post-secondary course must bring relevant documents to the Coordinator, Mathematics Department:

- a copy of course outline
- a copy of the transcript verifying successful completion of the equivalent course

Note: A copy of the transcript must be on frie in the Registrar's Office.

VIIf. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the instructor or the Prior Learning Assessment Office (E2203).