SAULT COLLEGE OF APPLIED ARTS % TECHNOLOGY

SAULT STE* MARIE* ONTARIO

COUBSE **OUTLINE**

INTRODUCTORY STATISTICS
Course Title*

MTH 255-4
Code No* .

GEOLOGY TECHNICIAN
Prodr3in•

III
Semester J

AUGUST 20, 1983
Date?

E.A.N. SU6DEN
Authort

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GEOLOGY TECHNICIAN
MTH 255-4
INTRODUCTORY STATISTICS

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INTRODUCTORY STATISTICS   MTH 255-4

        Course Nsme   Course Number

EHILQSQEHY^GOALS.

        The course is designed to familiarise students in the Geology Tech
program with basic statistical methods that will be used in their proSr
in the field* Wherever possible* examples will be included from the sie
field•

        On completing the course students will be able to present data and
summaries of data in tables* histograms* pie charts* etc. They will be
compute means* medians and modes from grouped and ungrouped data. Stud
will be able to determine the probability of events* calculate the math
expectation* and calculate the mean and standard deviation of probsbi1:L
distributions. They will be able to understand normal distribution and
practical application of it. The student will understand and calculate
sample and size and will be able to perform and interpret simple regres
(linear).

METHOD OE ASSESSMENI .(.GRADING MEIHDD1.

        Students will be graded on the basis of their performance on 5 tes
given at appropriate intervals during the semester. Each test will be
20% of the final grade. Letter grades will be assigned as follows.

                        A - 80+%
                        B - 69-79%
                        C - 59-69%
                        R - -59%

Students with an R standing and who have at least 50% 3S their final ma
be permitted to write 3 supplemental test.

IEXIBQ0K1S1.

        Sanders* D.H.* Murph* A.F. 8 Eng* R.J.* Statistics! A Eresb ASEJCQ
McGraw-Hill* New York* 1980.

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DBJECIIUES:

On completion of the course the student will be able to*

Construct freouency tables from raw data
Sketch the graphs resulting from these tables
Sketch the bar graphs* pie charts etc* from tabulated data
Determine arithmetic mean* weighted mean from raw date and from
fresuency tables
Calculate median and mode from raw data and frequency tables
Determine the probability of events
Calculate the mathematical expectation
Understand and use the addition and multiplication rules of
probability
Calculate the mean 3nd standard deviation of probability
distributions
Understand standard normal distribution
Convert measurements into standard units
Make practical application of the normal distribution
Understand and C3lculate rsndom sample and sample size
Calculate standard error
Use central limit theorem and standard error of the mesn
Calculate regression eouations by the least sQuares and slope-
intercept methods
Calculate and interpret the coefficient of correlation and sketc
scatter diagrams

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A = 80 + %
B = 69-79%
C = 59-69%
R = -59%

Students with an R standing and who have at least 50% as their final ma
be permitted to write a supplemental exam*

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Sanders* D»H»? Murph* A.F. % Eng* R.J»* Statistics! A Eresb 6EE.EC
McGraw-Hill* New York? 1980*

EEEERENCES

Freundi Modeio Elementary Statistics

Snedecor % Cochran* Statistical Methods

Dixon & Mssseai Introduction to Statistical Analysis

plus many more listed on the Microfiche catalogue in the Library i.
headings STATISTICS.

NATURE OE ERESENIAIIDNS

This is a theory course consisting of 4 separate meetings per week
Topics will be taught* discussed and examples of problems worked on in
and as assignments.

COURSE IQEICS

Uleek.	lassies Covered	
1	INTRODUCTION 10 SIAIISIICS	(Chapter 1)
	- Definition* history and subdivisions of statistics	
	- Course outline* evaluation	
2	EREQUENCY TABLES £ GRAEUS	(Chapters 2 S 2
	- Collection of dat3* samples	
	- Population and samples	
	- Construction of freauency tables* histograms* free, polygons* curves and ogives	
3-4	DESCRIEIIUE MEASURES	(Chapter 3)
	- Measures of central tendency	
	- Arithmetic mean	
	- Weighted mean	
	☛" Median and mode	

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COURSE TOPICS?

Week	Io&ics CDveied	
5-6	MEASURE OE UARIABILIIY.	(Chapter 4)

- Meaning of dispersion* range* variance and stsndsr
  deviation

7-8	REGRESSION AND CORRELATION	(Chapter 1.4)

- Scatter diagrams
- Estimation using regression line
- Correlation analysis
- Use of regression % correlation analysis

9	ERQBABILIIY	(Chapter 5)

- History of probability
- Two types of probability
- Rule of addition
- Rule of multiplication

10	ERQBABILIIY DISIRIEUIION	(Chapter 5)

- Meaning of probability
- Distribution
- Types of distribution
- Random variable

11	NQR8AL DISIRIEUIION	(Chapter 5)

- Characteristics
- Area under the curve
- Standard normal curve and application

12-13	SABELING	(Chapter 6)

- Purpose of definition
- Different types of sampling
- Sampling distribution
- Standard error

14-16	ESIIbAIlQN	(Chapter 7)

- Point % internal estimation
- Criteria of good estimator
- Large and small sample estimation for mean and the
  proportion
- Determination of sample size