

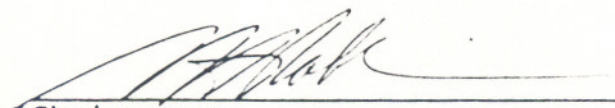
SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY  
SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: APPLIED STATISTICS (FORMERLY COMPUTER APPLICATIONS I)  
Code No.: FOR 356-4  
Program: FISH & WILDLIFE TECHNOLOGY/FOREST MANAGEMENT TECHNOLOGY  
Semester: V  
Date: MAY, 1987  
Author: VALERIE WALKER

New: \_\_\_\_\_ Revision: X

APPROVED:

  
Chairperson

Aug 25/87  
Date

CALENDAR DESCRIPTION

COMPUTER APPLICATIONS I  
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COURSE NAME

FOR 356-4  
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COURSE NUMBER

PHILOSOPHY/GOALS:

This course is designed to meet the statistical needs of students in Fish and Wildlife and Forest Management. Hypothesis testing, chi-square, analysis of variance, correlation and regression, as well as multiple regression analysis will be considered. Emphasis will be placed on solving typical problems in the student's own specialty using statistical packages (i.e. MINITAB) primarily on the mainframe computer.

Method of Assessment

- A - 80%
- B - 70%
- C - 60%
- R - less than 60%

Term Test	80%
Assignments	20%
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	100%

A. Term Tests

Term tests will be written for a total value of 80% of the course grade.

Term tests may include a written theory portion as well as data analysis on the computer terminals.

Term tests are accumulative.

B. Assignments

Much of the problem-solving and data analysis will be done in the form of assignments using the MINITAB statistical package. Certain of the assignments will be submitted for marking and will constitute 20% of the course grade.

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C. General

Students receiving a final grade of less than 60% based on term tests and assignments will be required to write an exam on the entire course content for a passing grade (ie "C").

Students receiving a grade of less than 45% will receive an automatic "R" grade, with no opportunity to rewrite.

Equipment

An electronic calculator is mandatory for classroom and test purposes.

Text

Ryan, B.R., B.L. Joiner and T.A. Ryan. 1985. Minitab Handbook, PWS Publishers, Boston, Massachusetts.

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		<u>No. of Hours</u>
UNIT 1	<b>Introduction</b>	8
	.the misuse of statistics	
	.types of biological data	
	.frequency distributions	
	.accuracy and significant figures	
	.introduction to MINITAB; plotting data	
UNIT 2	<b>Populations and Samples</b>	4
	.populations	
	.samples from populations	
	.random sampling	
	.parameters and statistics	
	.MINITAB commands to manipulate data	
UNIT 3	<b>Descriptive Statistics</b>	4
	.median	
	.mode	
UNIT 4	<b>One-Sample Hypotheses</b>	4
	.two-tailed hypotheses concerning the mean	
	.one-tailed hypotheses concerning the mean	
	.confidence limits	
	.variability about the mean	
	.sample size and estimation of the population mean	
	.confidence limits for the population variance	
	.hypotheses concerning the variance	
	.effect of coding	

UNIT 5	<b>Two-Sample Hypotheses</b>	8
	<ul style="list-style-type: none"><li>.testing for differences between two variances</li><li>.confidence interval for variance ration</li><li>.testing for differences between two means</li><li>.confidence interval for means</li><li>.sample size and estimation of difference between two population means</li><li>.power and sample size</li><li>.nomparametric statistical methods</li><li>.effect of coding</li><li>.testing from differences between two diversicy indices</li><li>.paired sample hypotheses testing</li></ul>	
UNIT 6	<b>Analysis of Variance</b>	8
	<ul style="list-style-type: none"><li>.one-way and two-way ANOVAs</li><li>.confidence limits for means</li><li>.nonparametric ANOVA</li><li>.testing for difference between several medians</li><li>.homogeneity of variances</li></ul>	
UNIT 7	<b>Correlation and Regression</b>	4
	<ul style="list-style-type: none"><li>.regression vs. correlation</li><li>.testing for significance</li><li>.fitting a straight line</li><li>.predictions</li><li>.multiple regressions</li><li>.interpreting residuals</li><li>.transformations</li></ul>	
UNIT 8	<b>Testing for Goodness of Fit/ Contingency Tables</b>	4
	<ul style="list-style-type: none"><li>.goodness of fit</li><li>.chi-square goodness of fit</li><li>.statistical significance</li><li>.errors in hypotesis testing</li><li>.bias</li></ul>	
UNIT 9	<b>More Problem Solving</b>	
	NB - Schedule subject to change	

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REFERENCE TEXTS

Alder, H.L. and E.B. Roessler, 1972. Introduction to Probability and Statistics, Freeman, San Francisco, 373 p.

Finney, D.J., 1966. Experimental Design and Its Statistical Basis, University Chicago Press, Chicago, 169 p.

Giles, R.H. (Editor), 1971. Wildlife Management Techniques, The Wildlife Society, Washington, 633 p.

Levin, R.I. and D.S. Rubin, 1980. Applied Elementary Statistics, Prentice-Hall, Inc., Englewood Cliffs, N.J. 07632.

Ricker, W.E., 1968. Methods for Assessment of Fish Production in Fresh Water, IBP Handbook No. 3, Blackwell, Oxford 313 p.

Sanders, D.H., A.F. Murph and R.J. Eng, 1980. Statistics: A Fresh Approach, McGraw-Hill Book Company, Toronto.

Snedecor, G.W. and W.G. Cochran, 1967. Statistical Methods, 6th Edition Iowa State University Press, Ames, 593 p.

Sokal, R.R. and F.J. Rohlf, 1969. Biometry, the Principles and Practice Satitistics in Biological Research, Freeman, San Francisco, 776 p.