SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: COMPUTER APPLICATIONS I

Code No.:   FOR 356-4

Program: FOREST MANAGEMENT TECHNOLOGY/FISH & WILDLIFE TECHNOLOGY

Semester: V

Date: FEBRUARY, 1987

Author: VALERIE WALKER

New: ___X___   Revision: _____

APPROVED: _____   _____
           Chairperson   Date

CALENDAR DESCRIPTION

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   COURSE NAME   COURSE NUMBER

PHILOSOPHY/GOALS:

This course reviews basic descriptive statistics, their uses and
limitations, followed by problem solving, using the binomial, normal
and t-distributions. In addition, the use of confidence limits in
hypothesis testing, sample size and the effect of coding is
considered. Emphasis is placed on solving typical problems in the
student's own specialty using statistical packages and contemporary
software.

METHOD OF ASSESSMENT (GRADING METHOD):

Term Tests   60%
Assignments   40%

   TOTAL   100%

TEXTBOOK(S)

Schefler, William C., Statistics for the Biological Sciences, 1979.
Addision-Wesley Publishing Company, Don Mills, Ontario

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No. of Hours

UNIT 1	**Introduction**	2

.the misuse of statistics
.types of biological data
.frequency distributions
.accuracy and significant figures

UNIT 2	**Populations and Samples**	2

.populations
.samples from populations
.random sampling
.parameters and statistics

UNIT 3	**Measure of Central Tendency**	4

.aritmetic mean
.median
.mode
.weighted mean
.geometric mean
.effect of coding data

UNIT 4	**Measures of Dispersion and Variability**	8

.range
.mean deviation
.variance
.standard deviation
.coefficient of variation
.indices of diversity
.effect of coding data

UNIT 5	**Testing for Goodness of Fit**	4

.chi-square goodness of fit
.statistical significance
.errors in hypotesis testing
.bias

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UNIT 6	**Contingency Tables**	4

.chi-square analysis
.statistical significance
.errors in hypothesis testing
.bias

UNIT 7	**Normal Distribution**	4

.symmetry and kurtosis
.proportions of normal distribution
.distribution of means
.assessing departures from normality

UNIT 8	**One-Sample Hypotheses**	8

.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 9	**Two-Sample Hypotheses**	8

.testing for differences between two
 variances
.confidence interval for variance ration
.testing for differences between two means
.confidence interval for means
.sample size and estimation of difference
 between two population means
.power and sample size
.nomparametric statistical methods
.effect of coding
.testing from differences between two
 diversity indices

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UNIT 10 **Paired-Sample Hypotheses**   8

    .paired sample t test
    .confidence limits for population mean
     difference
    .power and sample size in paired-sample
     testing of means
    .paired-sample testing by ranks

UNIT 11 **Multisample Hypotheses: The Analysis
of Variance**   8

    .single factor analysis of variance
    .confidence limits for means
    .power and sample size
    .nonparametric ANOVA
    .testing for difference between several
     medians
    .effect of coding
    .homogeneity of variances

UNIT 12 **Multiple Comparisons**   4

    .Tukey test
    .Newman-Keuls test
    .confidence intervals
    .Scheff's multiple contrasts
    .nonparametric multiple comparisons
    .nonparametric multiple contrasts
    .multiple comparisons among medians
    .multiple comparisons among variances

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TERM TESTS

Term tests will be written for a total value of 60% of the course grade. Term tests are accumulative.

HOMEWORK ASSIGNMENTS

Problems in the form of homework assignments will consitute the remaining 40% of the course grade. Certain of these problems will be solved using the Minitab data analysis system. Late assignments will be deducted 10% per day for every day late.

Students failing to submit homework assignments will receive an "I" for that assignment. Students with outstanding homework assignments at the end of the semester will be required to submit those assignments, although they will be valued at zero. Failure to submit outstanding assignments will result in "I" grade for the course regardless of term test results.

Students failing two or more term tests will be required to write a final exam on the entire course content during the rewrite period. A passing grade is 60%.

Students receiving a grade of less that 60% based on term tests and homework assignments will be required to rewrite the unit test on which they performed the poorest during the rewrite period.

Students with a final grade of less that 45% will receive an automatic "R" grade for the course, with no opportunity to rewrite a final exam.

EQUIPMENT:

An electronic calculator is mandatory for classroom and test purposes.

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REFERENCE TEXTS

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

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

Giles, R.H. (Editor), 1971. <u>Wildlife</u> <u>Management</u> <u>Techniques</u>, The Wildlife Scoiety, Washington, 633 p.

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

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

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

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

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