

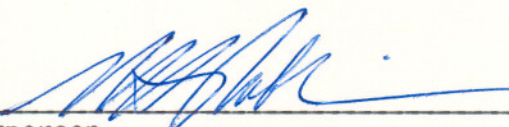
SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: BIOMETRICS
Code No.: FOR 301-4
Program: FISH & WILDLIFE TECHNOLOGY
Semester: FIVE
Date: AUGUST, 1984
Author: S. C. VERMA

New: _____ Revision: X

APPROVED:


Chairperson

Aug 20/84
Date

CALENDAR DESCRIPTION

BIOMETRICS
Course Name

FOR 301-4
Course Number

PHILOSOPHY/GOALS:

The course will review basic descriptive statistics, their uses and limitations followed by problem solving using the binomial, Poisson, normal and t-distributions. The use of confidence limits in hypothesis testing is considered, followed by an introduction to analysis of variance. Emphasis is placed on solving typical problems in the specialized area using statistical package and library programs. An effort is made to consider practical fish and wildlife problems encountered by resource managers.

METHOD OF ASSESSMENT (GRADING METHOD):

| | MARKS |
|-------------------|-------|
| MIDTERM TESTS (2) | 40 |
| FINAL TEST | 40 |
| ASSIGNMENTS | 20 |
| | <hr/> |
| TOTAL | 100 |

TEXTBOOK(S):

Scheffler, William C., 1980. Statistics for the Biological Sciences, Addison-Wesley Publishing Co., Don Mills, Ontario.

STUDENT EVALUATION:

A total of three (3) term tests will be written after units 2, 4, and 7.

A series of homework questions will be assigned for a total value of 20%. A pass mark for the course is 60%.

The final mark will be awarded which is higher of either:

- a) the final examination mark;
- b) weighted mark calculated on the basis of all the term tests and assignments.

EQUIPMENT:

An electronic calculator is mandatory for classroom and test purposes.

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, Univ. 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 of Statistics in Biological Research, Freeman, San Francisco, 776 p.

BIOMETRICS - FOR 301-4

COURSE OUTLINE

| | <u>NO. OF WEEKS</u> |
|---|---------------------|
| UNIT 1: Introduction | 1 |
| - the misuse of statistics | |
| - experimental design | |
| - two-group designs | |
| UNIT 2: Arranging data | 3 |
| - data array and frequency distribution | |
| - measure of central tendency: | |
| - the arithmetic mean | |
| - the weighted mean | |
| - the geometric mean | |
| - mode, median | |
| - measure of dispersion: average deviation measures | |
| - relative dispersion: coefficient of variation | |
| UNIT 3: Probability | 3 |
| - basic concepts | |
| - types and rules | |
| - independent, dependent events | |
| - the Binomial distribution | |
| UNIT 4: The Normal Distribution | 2 |
| - normally distributed data | |
| - normal curve areas | |
| - departures | |
| UNIT 5: Sampling and Sampling Distribution | 3 |
| - normally the meaning of inference | |
| - sampling, sample size | |
| - sampling distribution | |
| - standard error | |
| - estimation: interval estimates | |
| - t-distribution | |
| UNIT 6: Hypothesis Testing | 3 |
| - basic concepts | |
| - decision making | |
| - one and two-tailed tests | |
| - levels of significance | |
| UNIT 7: Analysis of Variance | 1 |
| - comparisons among more than 2 groups | |
| - assumptions | |
| - model 1 and model 2 | |