

A Review of Biostatistics

A Program for Self-Instruction

**Third
Edition**

Paul E. Leaverton, Ph.D.

*Professor,
Epidemiology and Biostatistics,
College of Public Health,
University of South Florida,
Tampa, Florida;
formerly Acting Associate Director for
Epidemiology and Biometry,
National Heart, Lung, and Blood Institute,
Bethesda, Maryland*

Little,
Brown
and
Company
Boston/
Toronto

1. Descriptive Statistics	1
Fundamental Concepts	2
Populations and Rates	3
Descriptive Measures	7
2. Probability	17
Probability of an Event	18
Independent Events	21
3. Population Distributions and Samples	23
Populations and Samples	24
Population Distributions	25
The Normal (Gaussian) Distribution	26
Normal Limits	32
4. Statistical Inference: Sampling Variation and Confidence Intervals	35
Sampling Variation	36
Interpreting Confidence Intervals for a Population Mean	39
Interpreting Confidence Intervals for a Population Percentage	42
5. Statistical Inference: Tests for Statistical Significance	45
Tests for Statistical Significance: Comparing Percentages	46
Tests for Statistical Significance: Measurements	52
Two Kinds of Decision Errors	58
Statistical and Practical Significance	60
6. Linear Regression and Correlation	65
Linear Regression	66
Linear Correlation	71
Coefficient of Determination	75
7. Clinical Trials	79
Experiments	80
Clinical Trials	81

8. Epidemiology

85

Epidemiology and Causal Inference 86

Study Designs in Epidemiology 87

Statistical Analysis in Epidemiologic
Studies 92

References 97

Index 99