1. Record Nr. UNINA9911006600703321

Autore	Natrella Mary Gibbons
Titolo	Experimental Statistics
Pubbl/distr/stampa	Newburyport, : Dover Publications, c2005
ISBN	9780486154558 0486154556 9781628704365 1628704365
Edizione	[1st ed.]
Descrizione fisica	1 online resource (1007 p.)
Collana	Dover Books on Mathematics
Disciplina	519.5/7
Soggetti	Mathematical statistics Experimental design Mathematics Physical Sciences & Mathematics Mathematical Statistics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di contenuto	Cover; Title Page; Copyright Page; Preface; Notice; Foreword; Contents; Section 1 Basic Statistical Concepts and Standard Techniques for Analysis and Interpretation of Measurement Data; Chapter 1 Some Basic Statistical Concepts and Preliminary Considerations; 1-1 Introduction; 1-2 Populations, Samples, and Distributions; 1-3 Statistical Inferences and Sampling; 1-3.1 Statistical Inferences; 1-3.2 Random Sampling; 1-4 Selection of a Random Sample; 1-5 Some Properties of Distributions; 1-6 Estimation of m and ; 1-7 Confidence Intervals; 1-8 Statistical Tolerance Limits 1-9 Using Statistics to Make Decisions1-9.1 Approach to a Decision Problem; 1-9.2 Choice of Null and Alternative Hypotheses; 1-9.3 Two Kinds of Errors; 1-9.4 Significance Level and Operating Characteristic (OC) Curve of a Statistical Test; 1-9.5 Choice of the Significance Level; 1-9.6 A Word of Caution; Chapter 2 Characterizing the Measured Performance of a Material, Product, or Process; 2-1 Estimating Average Performance From a Sample; 2-1.1 General; 2-1.2 Best Single Estimate; 2-1.3 Some Remarks on Confidence Interval Estimates

2-1.4 Confidence Intervals for the Population Mean When Knowledge of the Variability Cannot Be Assumed2-1.4.1 Two-sided Confidence Interval; 2-1.4.2 One-sided Confidence Interval; 2-1.5 Confidence Interval Estimates When We Have Previous Knowledge of the Variability; 2-2 Estimating Variability of Performance From a Sample; 2-2.1 General; 2-2.2 Single Estimates; 2-2.2.1 s2 and s; 2-2.2.2 The Sample Range as an Estimate of the Standard Deviation; 2-2.3 Confidence Interval Estimates; 2-2.3.1 Two-sided Confidence Interval Estimates; 2-2.3.2 One-sided Confidence Interval Estimates
2-2.4 Estimating the Standard Deviation When No Sample Data are Available2-3 Number of Measurements Required to Establish the Mean with Prescribed Accuracy; 2-3.1 General; 2-3.2 Estimation of the Mean of a Population Using a Single Sample; 2-3.3 Estimation Using a Sample Which is Taken In Two Stages; 2-4 Number of Measurements Required to Establish the Variability with Stated Precision; 2-5 Statistical Tolerance Limits; 2-5.1 General; 2-5.2 Two-sided Tolerance Limits for a Normal Distribution; 2-5.3 One-sided Tolerance Limits for a Normal Distribution
2-5.4 Tolerance Limits Which are Independent of the Form of the Distribution2-5.4.1 Two-sided Tolerance Limits (Distribution-Free); 2-5.4.2 One-sided Tolerance Limits (Distribution-Free); Chapter 3 Comparing Materials or Products With Respect to Average Performance; 3-1 General Remarks on Statistical Tests; 3-2 Comparing the Average of a New Product With That of a Standard; 3-2.1 To Determine Whether the Average of a New Product Differs From the Standard; 3-2.1.1 Does the Average of the New Product Differ From the Standard (Unknown)? 3-2.1.2 Does the Average of the New Product Differ From the Standard (Known)?

Sommario/riassunto

Formulated to assist scientists and engineers engaged in army ordnance research and development programs, this well-known and highly regarded handbook is a ready reference for advanced undergraduate and graduate students as well as for professionals seeking engineering information and quantitative data for designing, developing, constructing, and testing equipment. Topics include characterizing and comparing the measured performance of a material, product, or process; general considerations in planning experiments; statistical techniques for analyzing extreme-value data; use of transformations