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Titolo	Design and Analysis of Experiments / / by Angela Dean, Daniel Voss, Danel Dragulji
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Edizione	[2nd ed. 2017.]
Descrizione fisica	1 online resource (XXV, 840 p. 146 illus., 52 illus. in color.)
Collana	Springer Texts in Statistics, , 2197-4136
Disciplina	519.5
Soggetti	Statistics Probabilities Statistical Theory and Methods Probability Theory Statistics in Engineering, Physics, Computer Science, Chemistry and Earth Sciences
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Principles and Techniques -- Planning Experiments -- Designs With One Source of Variation -- Inferences for Contrasts and Treatment Means -- Checking Model Assumptions -- Experiments With Two Crossed Treatment Factors -- Several Crossed Treatment Factors -- Polynomial Regression -- Analysis of Covariance -- Complete Block Designs -- Incomplete Block Designs -- Designs With Two Blocking Factors -- Confounded Two-Level Factorial Experiments -- Confounding in General Factorial Experiments -- Fractional Factorial Experiments -- Response Surface Methodology -- Random Effects and Variance Components -- Nested Models -- Split-Plot Designs.
Sommario/riassunto	This textbook takes a strategic approach to the broad-reaching subject of experimental design by identifying the objectives behind an experiment and teaching practical considerations that govern design and implementation, concepts that serve as the basis for the analytical techniques covered. Rather than a collection of miscellaneous approaches, chapters build on the planning, running, and analyzing of simple experiments in an approach that results from decades of teaching the subject. In most experiments, the procedures can be

reproduced by readers, thus giving them a broad exposure to experiments that are simple enough to be followed through their entire course. Outlines of student and published experiments appear throughout the text and as exercises at the end of the chapters. The authors develop the theory of estimable functions and analysis of variance with detail, but at a mathematical level that is simultaneously approachable. Throughout the book, statistical aspects of analysis complement practical aspects of design. This new, second edition includes an additional chapter on computer experiments additional "Using R" sections at the end of each chapter to illustrate R code and output updated output for all SAS programs and use of SAS Proc Mixed new material on screening experiments and analysis of mixed models Angela Dean, PhD, is Professor Emeritus of Statistics and a member of the Emeritus Academy at The Ohio State University, Columbus, Ohio. She is a fellow of the American Statistical Association and the Institute of Mathematical Statistics. Her research interests include design of screening and computer experiments. Daniel Voss, PhD, is Professor Emeritus of Mathematics and Statistics and former Interim Dean of the College of Science and Mathematics at Wright State University, Dayton, Ohio. His researchinterests include the analysis of saturated fractional factorial experiments, and the equivalence of hypothesis testing and confidence interval estimation. Danel Draguljic, PhD, is Assistant Professor of Mathematics at Franklin & Marshall College, Lancaster, Pennsylvania. His research interests include design of screening experiments, design of computer experiments, and statistics education.