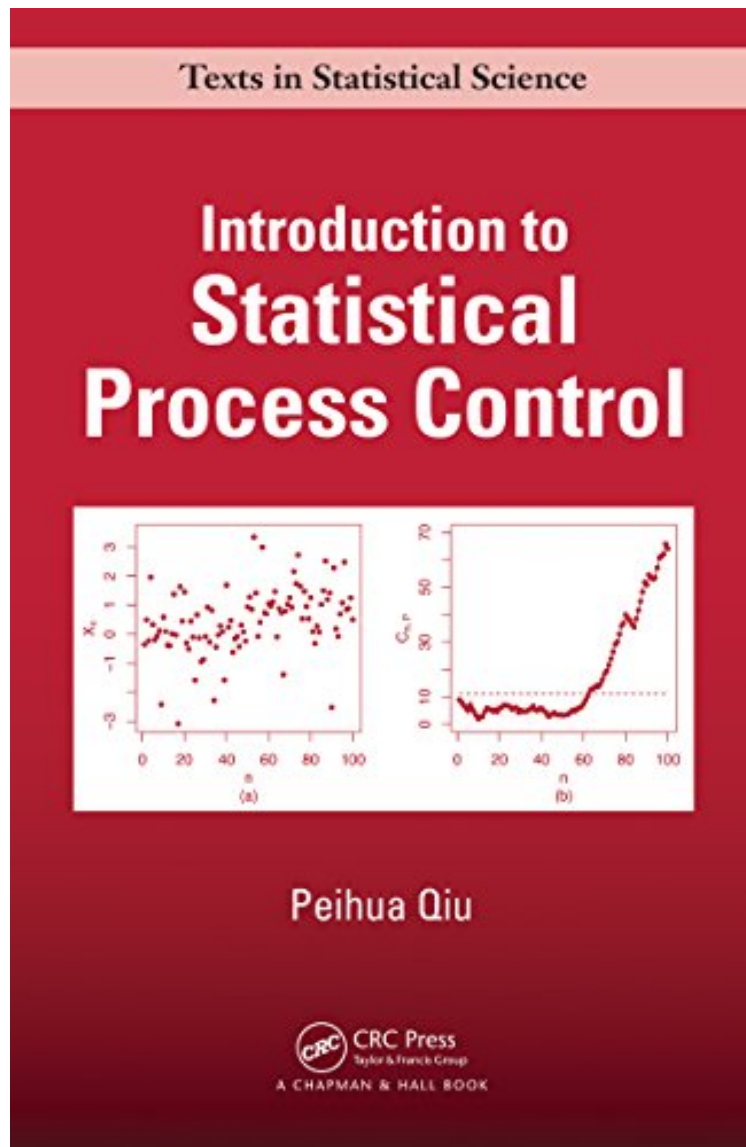


# Introduction to Statistical Process Control (Chapman Hall/CRC Texts in Statistical Science)

Peihua Qiu

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**Peihua Qiu : Introduction to Statistical Process Control (Chapman Hall/CRC Texts in Statistical Science)**

before purchasing it in order to gage whether or not it would be worth my time, and all praised Introduction to Statistical Process Control (Chapman Hall/CRC Texts in Statistical Science):

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A major tool for quality control and management, statistical process control (SPC) monitors sequential processes, such as production lines and Internet traffic, to ensure that they work stably and satisfactorily. Along with covering traditional methods, *Introduction to Statistical Process Control* describes many recent SPC methods that improve upon the more established techniques. The author, a leading researcher on SPC, shows how these methods can handle new applications. After exploring the role of SPC and other statistical methods in quality control and management, the book covers basic statistical concepts and methods useful in SPC. It then systematically describes traditional SPC charts, including the Shewhart, CUSUM, and EWMA charts, as well as recent control charts based on change-point detection and fundamental multivariate SPC charts under the normality assumption. The text also introduces novel univariate and multivariate control charts for cases when the normality assumption is invalid and discusses control charts for profile monitoring. All computations in the examples are solved using R, with R functions and datasets available for download on the author's website. Offering a systematic description of both traditional and newer SPC methods, this book is ideal as a primary textbook for a one-semester course in disciplines concerned with process quality control, such as statistics, industrial and systems engineering, and management sciences. It can also be used as a supplemental textbook for courses on quality improvement and system management. In addition, the book provides researchers with many useful, recent research results on SPC and gives quality control practitioners helpful guidelines on implementing up-to-date SPC techniques.

"The material in all chapters is presented in a concise manner, without proofs, but with many relevant references. I find the last four chapters of the book valuable and worth having. Graduate students in statistics departments and experienced researchers would benefit from the quick exposure to the ideas and methodologies and in particular from the extensive bibliography. ... the book contains material not presented in other books along with many relevant references. It would be a useful addition to the libraries of graduate students and researchers." Shelemyahu Zacks, *The American Statistician*, November 2014 "Bringing new statistical methods for quality control in line with the computer age, *Introduction to Statistical Process Control* presents state-of-the-art statistical process control (SPC) techniques for industrial and service processes. This book reflects major progress in the use of SPC for product and process improvement, introduces some of the newest discoveries and sheds further light on existing ones on the SPC approaches that can be applied across various areas of research, including engineering, medicine, and service. It is accessible to SPC researchers as well as quality control engineers with varying levels of statistical expertise, with plenty of data examples that make reading and learning enjoyable. As it demonstrates how to apply the SPC methods to a broad range of processes and models encountered in practice, the book also serves as a valuable reference for professionals in the systems engineering, medical, and management science fields, as well as those in computer and information sciences who would like to learn more about quality control or sequential process monitoring. It is generally my first recommendation when asked for a valuable resource in the field due to the breadth of topics covered and its practical utility. In addition, I think the book would be an excellent choice as the primary textbook in an SPC course." Dr. Changliang Zou, Department of Statistics, Nankai University, China About the Author Peihua Qiu, Ph.D., is the founding chair of the Department of Biostatistics at the University of Florida. He was previously a professor in the School of Statistics at the University of Minnesota. He is the editor of *Technometrics*, an elected fellow of the American Statistical Association and the Institute of Mathematical Statistics, and an elected member of the International Statistical Institute. His research focuses on jump regression analysis, medical image analysis, statistical methods for monitoring processes, and patient survival data analysis.