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	Nota di contenuto	PART I -- Foreword -- Extreme Observations in Biomedical Data -- An Ordinal Joint Model for Breast Cancer -- Sample Size Impact on the Categorisation of Continuous Variables in Clinical Prediction -- ntegrative Analysis of Transcriptomics and Proteomics Data for the Characterization of Brain Tissue After Ischemic Stroke -- Applying INAR-Hidden Markov Chains in the Analysis of Under-Reported Data -- Joint Modelling for Flexible Multivariate Longitudinal and Survival Data: Application in Orthotopic Liver Transplantation -- A Multi-State Model for the Progression to Osteopenia and Osteoporosis among HIV-Infected Patients -- Statistical Challenges for Human Microbiome Analysis -- Integrative Analysis to Select Genes Regulated by Methylation in a Cancer Colon Study -- Topological Pathway Enrichment Analysis of Gene Expression in High Grade Serous Ovarian Cancer Reveals Tumor-Stoma Cross-Talk.-PART II -- Foreword -- Biological Dosimetry, Statistical Challenges: Biological Dosimetry after High-Dose Exposures to Ionizing Radiation -- Heterogeneous Correlation of Multi-Level Omics Data for the Consideration of Inter-Tumoural Heterogeneity -- Overview of Topics Related to Model Selection for Regression -- Understanding Plaque Overlap is Essential

for Modelling Radiation Induced Atherosclerosis -- On the Use of Random Effect Models for Radiation Biodosimetry -- Modelling of the Radiation Carcinogenesis: the Analytic and Stochastic Approaches -- Bayesian Solutions to Biodosimetry Count Data Problems and Supporting Software -- Empirical Assessment of Gene Expression Biomarkers for Radiation Exposure -- Poisson-Weighted Estimation by Discrete Kernel with Application to Radiation Biodosimetry -- R Implementation of the Excess Relative Rate Model: Applications to Radiation Epidemiology -- Uncertainty Considerations Following a Mechanistic Analysis of Lung Cancer Mortality.

Sommario/riassunto	This two-part volume gathers extended conference abstracts corresponding to selected talks from the "Biostatnet workshop on Biomedical (Big) Data" and from the "DoReMi LD-RadStats: Workshop for statisticians interested in contributing to EU low dose radiation research", which were held at the Centre de Recerca Matemàtica (CRM) in Barcelona from November 26th to 27th, 2015, and at the Institut de Salut Global ISGlobal (former CREAL) from October 26th to 28th, 2015, respectively. Most of the contributions are brief articles, presenting preliminary new results not yet published in regular research journals. The first part is devoted to the challenges of analyzing so called "Biomedical Big Data", tremendous amounts of biomedical and health data that are generated every day due to the use of recent technological advances such as massive genomic sequencing, electronic health records or high-resolution medical imaging, among others. The analysis of this information poses significant challenges for researchers in the fields of biostatistics, bioinformatics, and signal processing. Furthermore, other relevant challenges in biostatistical research, not necessarily involving big data, are also discussed. In turn, the second part is dedicated to low dose radiation research, where there is a need to fully understand and characterize potential sources of uncertainty before they can be reduced. Further, the book demonstrates why formal uncertainty analysis has the potential to provide a common platform for multidisciplinary research in this field. This book is intended for established researchers, as well as for PhD and postdoctoral students who want to learn more about the latest advances in these highly active areas of research.