Sandrine Dudoit, PhD

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Sandrine Dudoit is Executive Associate Dean in the College of Computing, Data Science, and Society, Professor in the Department of Statistics, and Professor in the Division of Biostatistics, School of Public Health, at the University of California, Berkeley. She was Chair of the Department of Statistics at UC Berkeley from July 2019 to June 2022.

Much of Professor Dudoit's research concerns the development and application of statistical learning methods and software for the analysis of high-throughput omic data in both basic biology and precision health and medicine. Her methodological interests regard high-dimensional statistical learning and include exploratory data analysis (EDA), unsupervised learning (e.g., cluster analysis, dimensionality reduction), loss-based estimation with cross-validation (e.g., density estimation, classification, regression, model selection), and causal inference. Her methodological work is motivated in large part by statistical learning questions arising in biological and medical research and, in particular, high-throughput sequencing gene expression studies and precision health and medicine. Her contributions span a broad range of questions throughout the data science pipeline, of both practical relevance and theoretical interest: experimental design, EDA, normalization, expression quantitation, differential expression analysis, biomarker and treatment effect modifier discovery, class discovery, class prediction, inference of cell lineages, and integration of biological annotation metadata (e.g., Gene Ontology annotation). Professor Dudoit is also interested in statistical computing and, in particular, computationally reproducible research. She is a founding core developer of the Bioconductor Project (http://www.bioconductor.org), an open-source and open-development software project for the analysis of biomedical and genomic data.

Professor Dudoit is a co-author of the book *Multiple Testing Procedures with Applications to Genomics* and a co-editor of the book *Bioinformatics and Computational Biology Solutions Using R and Bioconductor.* She is Associate Editor of *The Annals of Applied Statistics* and *IEEE/ACM Transactions on* *Computational Biology and Bioinformatics*. Professor Dudoit was named Fellow of the American Statistical Association (2010), Elected Member of the International Statistical Institute (2014), and Fellow of the Institute of Mathematical Statistics (2021).

Professor Dudoit obtained a Bachelor's degree (1992) and a Master's degree (1994) in Mathematics from Carleton University, Ottawa, Canada. She first came to UC Berkeley as a graduate student and earned a PhD degree in 1999 from the Department of Statistics. Her doctoral research, under the supervision of Professor Terence P. Speed, concerned the linkage analysis of complex human traits. From 1999 to 2000, she was a postdoctoral fellow at the Mathematical Sciences Research Institute, Berkeley. Before joining the Faculty at UC Berkeley in July 2001, she underwent two years of postdoctoral training in genomics in the laboratory of Professor Patrick O. Brown, Department of Biochemistry, Stanford University. Her work in the Brown Lab involved the development and application of statistical methods and software for the analysis of microarray gene expression data.