

Statistica per il Marketing e l'Industria.

Prof. Marcello DE GIOSA

Programma del corso. A.A. 2016-17.

1. Introduzione al Software R ed ai Pacchetti Usati nel Corso.
2. Ridurre la Dimensione e la Complessità dei Dati.
Analisi delle Componenti Principali (PCA). Mappe Percettive. Analisi dei Fattori Esplorativa (EFA). Rotazione dei Fattori. Approfondimenti Matematici su PCA e EFA.
3. Segmentare la Clientela. Raggruppamenti e Classificazioni.
Raggruppamenti Gerarchici, Basati sulla Media, Basati sul Modello. Classificazioni. Approfondimenti Matematici su Raggruppamenti e Classificazioni.
4. Regole Associative e Analisi del Cesto della Spesa.
Regole Associative. Individuare e Visualizzare Regole. Esplorare Segmentazioni. Approfondimenti Matematici su Associazioni e Analisi del Cesto della Spesa.
5. Statistica Bayesiana per il Marketing e l'Impresa.
Introduzione alla Statistica Bayesiana e ai Metodi Markov Chains Monte Carlo (MCMC). L'Algoritmo Metropolis-Hastings ed il Gibb's Sampler. Stima di una Proporzione. Confronto di due Proporzioni. Approccio Bayesiano alla Regressione Semplice e Multipla. Approccio Bayesiano alla Analisi della Varianza (ANOVA) e della Covarianza (ANCOVA).
6. Modelli Lineari Generalizzati (GLM) e Gerarchici (HLM) Bayesiani per il Marketing e l'Impresa.
Regressione Logistica Bayesiana. Modelli Gerarchici Bayesiani. Approfondimenti Matematici su GLM e HLM.

Riferimenti. .

- C. Chapman, E.McDonnel Feit (2015) - R for Marketing and Analytics. - Springer.
 W.W. Piegorsch (2015) - Statistical Data Analytics. Foundations for Data Mining, Informatics, and Knowledge Discovery. - Wiley
 T. W. Miller (2015) - Marketing Data Science - Pearson.
 R. Kenett, S. Zacks, D. Amberti (2014) - Modern Industrial Statistics - Wiley
 D.C. Montgomery, G.C. Runger (2014) - Applied Statistics and Probability for Engineers - Wiley.
 M. Mazzocchi (2008) - Statistics for Marketing and Consumer Research - SAGE
 D.S. Putler, R.E. Krider (2012) - Customer and Business Analytics - CRC Press
 E.D. Hahn (2014) - Bayesian Methods for Management and Business - Wiley.
 M. Sarstedt, E. Mooi (2014) - A Concise Guide to Market Research - Springer.
 J.K. Kruschke (2015) - Doing Bayesian Data Analysis - Academic Press.

Statistical Data Science/Analytics for Marketing and Business.

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Course Content. A.A. 2016-17.

1. Overview of the R language and Packages Used During the Course.
2. Reducing Data Complexity and Dimension.
Principal Component Analysis (PCA). Perceptual Maps. Exploratory Factor Analysis (EFA). Rotations. Mathematical Insights on PCA and EFA.
3. Segmentation. Clustering and Classification.
Hierarchical Clustering. Mean-Based Clustering. Model Based Clustering. Classification. Mathematical Insights on Clustering and Classification.
4. Association Rules and Market Basket Analysis.
Metrics. Finding and Visualizing Rules. Exploring Segments. Mathematical Insights on Associations and Market Basket Analysis.
5. Bayesian Statistics for Marketing and Business.
Introduction to Bayesian Statistics and Markov Chains Monte Carlo (MCMC) methods. Metropolis-Hastings Algorithm and Gibb's Sampler. One Proportion Estimation. Two Proportion Comparison. Bayesian Approach to Simple and Multiple Linear Regression. Bayesian Approach to Analysis of Variance (ANOVA) and Analysis of Covariance (ANCOVA).
6. Bayesian Generalized and Hierarchical Linear Model (GLM, HLM) for Marketing and Business.
Bayesian Logistic Regression. Bayesian Hierarchical Model. Mathematical Insights on GLM and HLM.

References. .

- C. Chapman, E.McDonnel Feit (2015) - R for Marketing and Analytics. - Springer.
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