


Programma del Corso "Big Data: Models And Algorithms"

- Codice: DT0317
- Tipo di corso: Opzionale (Laurea Magistrale in Informatica percorso NEDAS)
- Livello del corso: Lauree Magistrali
- Semestre: 2

Numero di crediti ECTS: (Laurea Magistrale in Informatica) 3 (carico 75 ore)

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1	Obiettivi del corso	Upon completion of this course the student will have reliably demonstrated the ability to design, analyze and implement algorithms for massive data sets using state-of-the-art algorithmic techniques in the area. Furthermore, the student will be able to understand: i) storage strategies that are suited for large-scale datasets (e.g. distributed, unstructured); ii) alternative processing models that are relevant to big data; iii) fundamentals of large-scale data mining. Finally, the student will acquire basic knowledge of experimental algorithmic techniques and data analysis.
2	Contenuti del corso e risultati formativi (descrittori di Dublino)	<p>Gli argomenti trattati nel corso comprendono:</p> <ul style="list-style-type: none"> • Data Mining • Algorithmic techniques, storage frameworks, processing models for massive data sets • Experimental algorithmics <p>Alla fine del corso, lo studente dovrebbe:</p> <ul style="list-style-type: none"> • Understand the challenges of large scale data mining • Be able to describe in a comprehensible manner, analyze, evaluate, and compare the performance of algorithms, with a focus on models of computation relevant to massive data sets • Be able to design and implement algorithms for computational problems at large scale through state-of-the-art techniques • Be able to lookup and apply relevant research literature for problems related to storage and processing of massive data sets • Be able to express oneself in writing at scientific level • Know the foundations of the algorithmic experimental process design
3	Prerequisiti	Basic courses on design and analysis of algorithms and data structures. Mathematical and programming maturity. Fundamentals of data analysis.
4	Modalita' e lingua di insegnamento	<p>Frontal Instruction + Active/Cooperative Learning</p> <p>Lingua: Inglese</p> <p>Testi/Bibliografia</p> <ul style="list-style-type: none"> • Catherine McGeoch, <i>A Guide to Experimental Algorithmics</i>. • J. Leskovec, A. Rajaraman, J. D. Ullman, <i>Mining of Massive Datasets. 2nd Edition</i>.
5	Metodi di accertamento	Written Exam + Oral discussion (and/or Homework/Project)