



## Programma del Modulo "Networks"

- Codice: DT0341
- Tipo di corso: Obbligatorio (Laurea Magistrale in Data Science Applicata percorso Data for Smart City), Obbligatorio (Laurea Magistrale in Data Science Applicata percorso Data for Life Science)
- Livello del corso: Lauree Magistrali
- Semestre: 2

Numero di crediti ECTS: (Laurea Magistrale in Data Science Applicata) 6 (carico 150 ore)

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1	<b>Obiettivi del corso</b>	The student will be able to manage and analyze networks from several aspects.
2	<b>Contenuti del corso e risultati formativi (descrittori di Dublino)</b>	<p>Gli argomenti trattati nel corso comprendono:</p> <ul style="list-style-type: none"> <li>• Fundamentals of graph theory and Notation</li> <li>• Linear Algebra and Norms</li> <li>• Node Similarity Measures and algorithms</li> <li>• Network Generators</li> <li>• Key Players of a Network and Centralities measures</li> <li>• Networks and communities: algorithms and metrics.</li> </ul> <p>Alla fine del corso, lo studente dovrebbe:</p> <ul style="list-style-type: none"> <li>• On successful completion of this course, the student should: Understand: • Where graphs are, why they are important, and what are new applications; • The main challenges from data mining perspective:</li> </ul> <p>Learn: • Analyze networks to understand the properties and the behaviors of individuals • Think in a research perspective (novelty,clarity,...) • Solve practical problems</p>
3	<b>Prerequisiti</b>	- Knowing at least one Programming Language. - Notions of linear algebra.
4	<b>Modalita' e lingua di insegnamento</b>	<p><b>Lingua:</b> Inglese</p> <p><b>Testi/Bibliografia</b></p> <ul style="list-style-type: none"> <li>• Chakrabarti, D. and Faloutsos, C., <i>Graph mining: laws, tools, and case studies..</i> 2012.</li> <li>• Aggarwal, C.C. and Wang, H. eds, <i>Managing and mining graph data.</i> Springer. 2010.</li> <li>• Easley, D. and Kleinberg, J., <i>Networks, crowds, and markets: Reasoning about a highly connected world.</i> Cambridge University Press. 2010.</li> </ul>
5	<b>Metodi di accertamento</b>	Project, oral presentation of the project and discussion of course topics.