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| **Logo**  **Department of Economics Statistics and Finance** | ***Logistics System Planning***  **Master Degree in Statistics and Informatics for Business and Finance**  **a.y. 2014-2015** |

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| **Code** | 27003134 |
| **Description** | LOGISTICS SYSTEMS PLANNING |
| **Sector Code** | MAT/09 |
| **Single Module Type** | SC |
| **CFU** | 10 |
| **Course Year** | 2 |
| **Academical Period** | 1st semester (1st-2nd period) |
| **Apprenticeship** | NO |
| **Language Of Instruction** | Italian |
| **Course Contents** | • Introduction to Logistics. • Combinatorial optimization problems. Introduction to the theory of complexity: classes P and NP, NP-complete problems, exact and heuristic methods, approximation algorithms. Introduction to graph theory. • Transportation. Models and algorithms for shortest path, bin packing, the traveling salesman and vehicle routing problems. • Location. Models and algorithms for location problems based on the concept of p-median, p-center and covering. Models and algorithms for Simple and Capacitated plant location problems. • Inventory. Economic Order Quantity (EOQ) model. Models and algorithms for dynamic lot sizing problems. • Scheduling. Problems of scheduling on a single machine and parallel machines: Shortest Processing Time first (SPT), Smith, Earliest Due Date first (EDD), Extended Jackson's Rule (EJR), V-shaped, Critical Ratio rules. Moore algorithm. Lawler algorithm. |
| **Recommended or Required Reading** | 1. Supplementary notes of the teacher. 2. G. Ghiani, R. Musmanno, Modelli e Metodi per l'Organizzazione dei Sistemi Logistici, Pitagora Editrice, Bologna, 2000 3. G. Bruno, Operations Management, Edizioni Scientifiche Italiane, Napoli, 2003 4. David Simchi-Levi, Julien Bramel, Xin Chen, The Logic of Logistics: Theory, Algorithms, and Applications for Logistics and Supply Chain Management, Springer, 2005 5. A. Agnetis, C. Arbib, M. Lucertini, S. Nicoloso, Il Processo Decisionale, La Nuova Italia Scientifica, 1992 6. A. Sassano, Modelli e algoritmi della ricerca operativa, Franco Angeli, 1999 |
| **Learning Outcomes** | Knowledge of the basic models and exact and heuristic algorithms for some optimization problems arising in logistics centers. |
| **Prerequisites** |  |
| **Teaching Methods** | Lectures, home works, group works. |
| **More Information** | Teacher’s Page: <http://www.unical.it/portale/strutture/dipartimenti_240/disesf/servizi/paletta/> |
| **Assessment Methods** | mid-term and final exams. |
| **Raccomanded Programme** |  |
| **ID Number** | 002242 |
| **Last Name** | PALETTA |
| **First Name** | Giuseppe |
| **Role Code** | PO |
| **Activity Type** | LEZ |
| **Hours** | 60 |