Foundations of O.R.: Information

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Students

- Computer Science and Eng., Telecom Eng., Biomedical Eng. and Music and Acoustic Eng.: from M to Z

- Geoinformatics Eng.: from A to Z

Course mode

75% online (lectures and computer labs) and 25% in class (exercises) split into two teams.

Course material

All information and material (slides, exercises and computer labs) available on Beep.

Schedule

- Tuesday 12.15 - 13.15(14.15):   exercises **Team I**,   Room 3.0.2 (ex S.0.5)

- Wednesday 11.15 - 14.15:   lectures,   Webex virtual room

- Friday 10.15(11.15) - 12.15:   exercises **Team II**,   Room 8.0.1 (ex F.0.1)

- Saturday 9.15-11.15:   computer laboratory,   Webex virtual room

    Team I/II: all students with **odd**/**even** "codice persona"

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Exercises and computer labs

A **weekly set of problems** (assigned ahead of time) to be corrected in class the following week.

Computer laboratory sessions: only **two online meetings** of 90 minutes (dates TBA) and **3 assignments**.

Independent study

A couple of topics (e.g. LP sensitivity analysis) will be assigned for independent study prior to exercises or computer laboratory activities.

Instructors

- Lectures:
    - ▶ Edoardo Amaldi   edoardo.amaldi@polimi.it

- Exercises:
    - ▶ Edoardo Amaldi   edoardo.amaldi@polimi.it
    - ▶ Riccardo Cantoni   riccardo.cantoni@polimi.it

- Computer labs:
    - ▶ Riccardo Cantoni   riccardo.cantoni@polimi.it

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Course objectives

- Learn how to analyze a decision-making problem, build an optimization model, identify an appropriate algorithm and interpret the output.

- Understand some of the main optimization methods (e.g. graph optimization and project planning algorithms, simplex method, branch and bound method).

- Learn how to use a modeling language (AMPL) and a state-of-the-art optimization solver (CPLEX).

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Prerequisites

- Basic concepts from Calculus, Geometry, Linear algebra and algorithm complexity analysis.

Teaching material

- Slides of the lectures and material for the exercise/computer lab sessions available from **Beep**.

- For a complementary treatment of the topics covered and other topics:

  F. Hillier, G.J. Lieberman, Introduction to Operations Research, Ninth edition, McGraw-Hill, 2010.

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Evaluation

A written exam (distance or in presence) covering all the material presented in the lectures, exercise/computer lab sessions and assigments.

4-5 questions aimed at evaluating the level of (applying) knowledge and understanding of the main concepts, models, results and methods covered.

Old exam questions will be provided.