Applied Quantitative Logistics

Intro and Course overview

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Contacts

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Repository with course material

https://github.com/Majid-Sohrabi/2025_AQL

Course content

- Theory
  - Combinatorial & Supply Chain Optimization problems
  - Discrete & Continuous optimizations (single-objective problems)
  - Genetic Engineering Algorithm (GEA) and Genetic Speciation
  - Other state-of-the-art metaheuristic approaches
- Practice
  - Python (or MATLAB) programming languages
  - Data Analysis
  - Implementation of mathematically formulated of problem statement
  - Implementation of the algorithms

Overview

- Elective course for year 1
- Master's Program "Data Science"
- Duration: 2nd half of the academic year (modules 3 and 4)
- Language: English
- Format: Offline (Lectures and Seminars)

Scoring System

- **Homework**: Each 1-2 weeks (total - 30%)
- **Paper review 1** module 3 (total - 15%)
- **Paper review 2** module 4 (total - 15%)
- Students **intermediate project presentation** in the 3rd module (5%)
- **Final submission of the project** by the end of the 4th module (35%)

The formula

$$\text{Final grade} = 0.3 \cdot \text{Homework} + 0.15 \cdot \text{Paper review} + 0.15 \cdot \text{Paper review} + 0.05 \cdot \text{Intermediate report} + 0.35 \cdot \text{Project}$$

$$0 \leq \text{Homework} \leq 10$$

$$0 \leq \text{Paper review} \leq 10$$

$$0 \leq \text{Intermediate report} \leq 10$$

$$0 \leq \text{Project} \leq 10$$

Rounding to the closest integer

Homework

- A small set of tasks in 1-2 weeks (jupyter notebooks)
- Solve tasks to earn points
- Deadline: 1-2 weeks per homework
- Homework grade $= 10 \cdot \min\left(1, \frac{\sum \text{points}}{\text{total}}\right)$

- **Plagiarism matters!!!**
- **In case of AI detected, student needs needs defense.**

Paper review

- Choose a paper in related domain
- Prepare a presentation
- Present the paper at the end on module each module
- Paper selection should be:
  - Recent work (> 2020)
  - Highly qualified journals (Q1/Q2)

- **Please discuss your choice with me**

Final Project

- The project is:
  - Implementation of some techniques or study from an advanced paper
  - Teams up to 2 people are OK (roles of all members of a team should be clear and significant)

- You can find something that interests you by yourself

  Or:

- I'll provide some suggestions later

- **Please discuss your choice with me**

Note: Intermediate report is a must to be qualified for final project defense.

Thank you!

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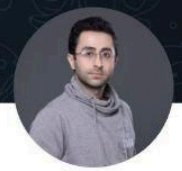

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