



Research School for Transport,
Infrastructure and Logistics

Course Data science bootcamp

Date:	14, 21, 28 September and 5 October 2021
Time:	10:00 – 16:00 h.
Location:	TU Delft or company location or online (t.b.d)
Course leader(s):	Dr. Panchamy Krishnakumari
Days:	4
ECTS:	1 (class)
Course fee:	free for TRAIL/Beta/OML members, others please contact the TRAIL office
Registration:	www.rstrail.nl

Objectives

After this course, attendees are able to:

- Collect and translate the requirements from multidisciplinary stakeholders into a data science project;
- Identify, build and assess the core components of a data pipeline;
- Apply data science tools and techniques to solve real-world TIL problems;
- Effectively communicate the data solution to the stakeholders.

Course description

The course is a project-based course, where the data and requirements are provided by stakeholders on topics ranging from but not limited to: Road Transport Systems, Public Transport Systems, Freight Systems, Transport and Pollution, Transport and Equity.

With the 4-day course, the students will follow common data pipeline and use the same tools to answer their assigned/chosen projects. During the class, they will learn to work together to explore a single dataset in detail to extract useful insights for their clients/stakeholders. The course can be considered as an extended hackathon with guidance. Potential stakeholders/companies are AMS, Gemeente Den Haag, NS, NDW, WMATA, Rijkwaterstraat, Argaleo.

Assignment

There is no additional assignment other than in-class data hacking within their assigned groups.

Program

Day 1: Problem description, project environment and management setting

Data exploration, visualization and processing

Day 2: Ethics and privacy implication of their solution

Simple ML methods – Unsupervised, supervised and reinforcement learning

Day 3: Data stories and final prototype building

Day 4: Final project presentation

Course material

Slides, example python notebooks and online materials

Methodology

The working methods consists of short oral lectures followed by coding time within their assigned groups with supervision. Students should bring a laptop with Python (preferably Anaconda distribution) installed on it.

Prerequisite

Basic Python coding skills