

CIVIL-557

Decision-aid methodologies in transportation

Course Overview

Fabian Torres and Evangelos Paschalidis

Transport and Mobility Laboratory TRANSP-OR
École Polytechnique Fédérale de Lausanne EPFL

Course information

Lecturers

- Dr Fabian Torres - Operations Research (OR).
- Dr Evangelos Paschalidis - Statistical Modeling (SM).

Main course objectives

- Model transportation problems and solution methods.
- Model drivers' decisions using real world datasets.

Class structure

- OR Module: From February 18 to April 1.
- SM Module: From April 8 to May 27.

Operations Research

- Written exam (50%):
 - Multiple choice questions.
- Individual Project (50%):

Statistical Modeling

- Written exam (50%):
- Individual Project (50%):

Schedule

Schedule					
Week	Lecturer	8:15-9:00	9:15-10:00	10:15-11:00	11:15-12:00
1	18-Feb	FT	Introduction Decision Aid methodologies		Exercises
2	25-Feb	FT	Modeling MIP	Modeling MIP	Modeling MIP
3	4-Mar	FT	Shortest Path Problems	Shortest Path Problems	Shortest Path Problems
4	11-Mar	FT	Metaheuristics	Metaheuristics	Metaheuristics
5	18-Mar	FT	Metaheuristics	Metaheuristics	Metaheuristics
6	25-Mar	FT	Schindler Case Study: Elevator dispatching		
7	1-Apr	FT	EXAM		
8	8-Apr	EP	Introduction to statistical modelling	Introduction to statistical modelling	Estimation of statistical models
9	15-Apr	EP	Introduction to driving behaviour models	The car-following model	Estimation of car-following model (Basic specification)
10	22-Apr	-	Easter Holiday	Easter Holiday	Easter Holiday
11	29-Apr	EP	Random effects in statistical models	Model estimation with random effects	
12	6-May	EP	Latent classes	Latent class specification (car-following example)	
13	13-May	EP	The lane changing model	Latent class car-following specification	SM Project
14	20-May	EP	Q&A and exercise revision session		
15	27-May	EP	EXAM		
	Lecture				
	Exercises				
	Project				