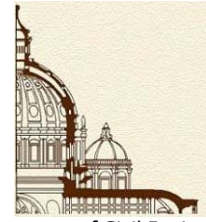Department of Transportation Engineering
"Federico II" University of Naples

Department of Civil Engineering
"Tor Vergata" University of Rome"

Course on
"ADVANCED MODELING AND SIMULATION OF TRANSPORTATION NETWORKS"

Offered by
Moshe Ben-Akiva, Massachusetts Institute of Technology
Ennio Cascetta, "Federico II" University of Naples
Agostino Nuzzolo, "Tor Vergata" University of Rome

Sorrento (Italy), May 17-21, 2010

Increasing levels of traffic congestion, the complexity of transportation services and regulations and the introduction of innovative technologies necessitate the application of advanced modelling and simulation tools. Applications include long range planning, design and operations. The tools used by transportation researchers and professionals for demand analysis and network assignment have been extended to include more realistic behavioural representations and dynamic settings. The course is intended to present these advances in the modelling and simulation tools of:

- Networks
- Demand
- Traffic assignment
- Transit systems
- Freight systems

Who should attend?
The course is designed for professionals (from industry, government and academia) interested in planning, design and management of transportation networks. Knowledge of basic transportation analysis tools and mathematical modelling methods is required.

Instructors
The directors of the course are professors Moshe Ben-Akiva (Massachusetts Institute of Technology), Ennio Cascetta ("Federico II" University of Naples) and Agostino Nuzzolo ("Tor Vergata" University of Rome). All of the instructors have extensive experience in diverse applications of networks models and simulation in both the public and private sectors. All have taught transportation analysis methods at the graduate level and have developed many of the techniques covered in the course.

Location
The course will be held in Sorrento, along the beautiful coast of the gulf of Naples (Italy).

Web site
www.tscsrl.eu/sorrento

Tentative course schedule

Supply and traffic performances I: static and dynamic networks
Supply and traffic performances II: macroscopic models
Supply and traffic performances III: flow-based (meso-scopic) models
Supply and traffic performances IV: microscopic and simulation methods

Demand models I: overview of discrete choice analysis
Demand models II: path and departure time choice
Demand models III: activity based models
Demand models IV: land-use/transport Interaction models

Traffic assignment I: framework for demand/supply performances interactions
Traffic assignment II: equilibrium and day-to-day dynamic models
Traffic assignment III: OD estimation
Traffic assignment IV: models for real-time prediction

Transit systems I: general framework and models for low frequency services
Transit systems II: general framework and models for high frequency services

Pricing and Revenue forecasting I: theory and models
Pricing and Revenue forecasting II: case studies

Freight models I: economic activity
Freight models II: logistic chain and mode choice
Freight models III: city logistics

Tuition and fellowships

Early Registration (before April 17, 2010): 2500 Euros
Late Registration (after April 17, 2010): 3000 Euros

In addition to the participation to the lectures and the laboratories, the tuition includes
- a CD with the handouts of the lectures and reading materials
- coffee breaks,
- a welcome cocktail to be offered on Monday afternoon,

A certificate will be awarded at the end of the course.

A **full-tuition fellowship** will be awarded to an outstanding doctoral student. Applications must contain a complete resume and a statement of the relevance of the course for the applicant's research. Partial fellowships may also be awarded to other outstanding applicants. Send your application by Email to coppola@ing.uniroma2.it before April 17, 2010.

If a fellowship is not approved, registration may be cancelled at no cost.

Important dates

April 17, 2010:   deadline for fellowships applications
May 10, 2010:   deadline for late registration
May 17-21, 2010: course