Statistical and Econometric Methods in Transportation

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Overview

Transportation Engineering is a major domain in Civil and Infrastructure Engineering. While transportation engineering research in India has been focused in the domain of pavement engineering until recently, research on transport planning and operations has gained importance with the expansion of transport infrastructures and information and communications technologies. Thus, in transport planning, design and mainly for transportation operational performance measurement, quantitative measures have become increasingly important.

Measurement in the transportation field heavily relies on modeling trends and data, which in turn require powerful, and flexible analytical tools. However, transportation professionals in general and particularly in India had limited access to well-designed courses that could provide unified and rigorous guidance to modeling the wide range of transport problems encountered in the field. While statistics and econometric courses are offered in many universities in India, very few courses are designed towards methods and techniques required in transport data analysis. This is particularly critical as transport data include a wide spectrum of data sources, ranging from experimental to observational, as well as data obtained through surveys, which may suffer from measurement errors and latency. The statistical and econometric methods to model such wide range of data include statistical techniques commonly used by statisticians, economists, engineering as well as social scientists and are hardly been covered under one umbrella. This puts transportation practitioners at disadvantage as they often lack the knowledge of suitable modeling techniques that are appropriate for certain type of data, such as data on travel demand, mode choice, safety measure in term of frequency and severity, emission and the environment. Without overwhelming transport researchers with statistical theory, this course clearly and concisely presents the relevant analytical methods in quantitative chapters built on transportation case studies and help provide a solid basis on selection of suitable statistical tools for scientific analysis.

Modules	**Duration : 26th November – 30th November, 2018** **26 Nov: Modelling Introduction and Review of estimators and their properties** **27 Nov: Specification errors and Count data models** **28 Nov: Discrete Choice models** **29 Nov: Simultaneous equation models and Duration models** **30 Nov: Random parameter models and Bayesian models** **Number of participants for the course will be limited to fifty.**
You Should Attend If…	▪ Research Engineers from research centers and R&D laboratories, senior engineers working in the area of transportation. ▪ Student at all levels (BTech/MTech/PhD) or Faculty from reputed academic institutions and technical institutions involved.
Fees	The participation fees for taking the course is as follows: **Participants from abroad: US $300/-** **Industry/ Research Organizations: INR 10000/-** **Faculty Members from Academic Institutions: INR 5000/-** **Students: INR 2000/-** The above fee includes all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr. free internet facility. The participants will be provided with accommodation on payment basis. Food, transport and accommodation of course participants will be borne by the individual course participants themselves.

Objectives

The course is designed with the following objectives:

- Exposing the fundamentals of statistical analysis of transport data
- Demonstrating process of formulating research hypothesis
- Demonstrating basis on identifying appropriate statistical and econometric tools and techniques to study different types of data
- Providing guidance to avoid common pitfalls and misapplications of statistical methods
- Providing guidance to interpret model results correctly

The Faculty

Simon Washington is Professor and Head of School, Civil Engineering, University of Queensland. He is recognized for his contributions in the fields of behavioral econometrics - applied in the areas of transport and urban planning, transport safety and risk across all travel modes, and travel behavior. He is Associate Editor or Editorial Advisory Board Member on six leading international transport journals. He has authored / co-authored more than 100 peer-reviewed journal articles and a 2nd edition of a textbook adopted in over 20 countries, and 6 book chapters. Prior to joining UQ he served on the faculties of the Queensland University of Technology, UC Berkeley, Arizona State University, the University of Arizona, and the Georgia Institute of Technology. He has been visiting professor at Ajou University (South Korea), University of Sydney, and Loughborough University (UK).

Sudeshna Mitra is Associate Professor at the Civil Engineering Department, IIT Kharagpur. She has over 15 years of experience in transportation research in both India and abroad. Her primary research is Road Traffic Safety, Econometric model of transport data and Sustainable transportation - Planning and Design. She has published many original research studies in the field of Road Traffic Safety and Transportation modelling in reputed international journals. As an educator, she is also keen in capacity building in the area of road traffic safety and has been serving as a standing committee member of "Highway Safety Workforce Development Committee" of Transportation Research Board. She is also an active member of Indian Roads Congress Committee H7: Road Safety and Design. She is particularly interested in implementing her knowledge in practice and works actively with Governmental agencies to research, advocate, and implement Road Traffic Safety projects.

Course Co-ordinator

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