Advanced Transport and Regional Study (交通・地域学特論) I E (winter, 2009)

Course Number: 3713-057
Time: Friday 14:45-16:15
Venue: Lecture room # 16, Engineering Building No.1
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URL for course information: http://www.trip.t.u-tokyo.ac.jp/sim/lecture.htm

COURSE DESCRIPTION

This course focused on some important analytical methodologies for transport and regional planning. All lectures in the course are provided only in English on teaching basis. You will learn these methodologies and theories at the intermediate level.

PREREQUISIT

Japanese students are required to have introductive knowledge of methodologies for transport and regional planning dealt in the following courses at the undergraduate level.

1) Transport Planning/Engineering (交通学)
2) Analytical Methodologies for Civil Engineering I (数値解析手法Ⅰ): Statistics
3) Analytical Methodologies for Civil Engineering II (数値解析手法Ⅱ): Optimization

Foreign students are strongly recommended to read the following references:

1) William H. Greene: Econometric Analysis fifth edition, Prince Hall, 2003.
2) Rangarajan K. Sundaram: A First Course in Optimization Theory, Cambridge University Press, 1996.

SCHEDULE

The class consists of three parts. Each part consists of teaching lectures and a research presentation. The detail of the class schedule is as follows:

October 23: Guidance and introduction

Part 1: Discrete Choice Modeling and Travel Demand Forecast

October 30: Overview of discrete choice modeling (inc. formulation of Logit model)
November 13: Estimation of logit model; Methodology and small exercise
November 20: Overview of travel demand forecast; Four step model
November 27: Research presentation (1) by Group A1 & A2

Part 2: Methodologies of Network Flow Analysis

December 4: Overview of network flow analysis; From equilibrium to simulation
December 18: Solving network flow analysis; Algorithms
January 8: Research presentation (2) by Group B1 & B2

Part 3: Multivariate Analysis for Transport/Regional Study

January 15: Overview of multivariate analysis
January 22: Finding hidden facts from multivariate data; Factor analysis
November 29: Advanced factor analysis; Structured equation method
February 5: Research presentation (3) by Group C1 & C2

RESEARCH PRESENTRATION

Each student should belong to Group A1, A2, B1, B2, C1 or C2. Each group should give a presentation of your research results in the end day of the part. The research topic will be provided at least three weeks before. Group members are requested to prepare it with deep cooperation. A computer for the presentation will be prepared by the lecturer (you can bring your file with USB memory). The time for presentation including question and discussion time will be 40 minutes. Before the presentation, each group should submit one research report (free format) including the contents of the presentation.

GRADING

The course grading is determined by the performance of the presentation (30%), research report (30%) and final report assignment (40%). The deadline of the submission of the final report will be announced later. If you give very excellent comment and question in the research presentation, some bonus will be given. About 30% of trainees will be evaluated as “A”.

CORE REFERENCES

The core references for this course will be announced part by part, if required.