UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Statistics for Tourism: Models and Applications

2526-1-F7602M004

Learning objectives

By the end of this course, students will be able to apply statistical methods to analyze and predict tourism phenomena.
In particular, students can:

- identify the adequate method to analyse specific tourism phenomena (*applying knowledge and understanding*)
- define the statistical methods (*knowledge and understanding*)
- explain and compare the introduced statistical methods (*knowledge and understanding; making judgements*)
- identify the adequate method to analyse a specific tourism phenomenon and motivate the chosen method (*applying knowledge and understanding; making judgements*)
- perform statistical analysis using the software R: descriptive analysis, model estimation, interpretation and critical assessment of the results (*applying knowledge and understanding; making judgements*)
- present the analysis results to an audience thtat might be unfamiliar with the introduced methods (*communication skills*)
- learn model extensions independently (*learning skills*)

Contents

The course aims to introduce statistical methods to analyze and predict tourism phenomena and evaluate the efficacy of intervention policies.
After recalling basic statistical concepts, we introduce the models to explain the tourism demand and evaluate the efficacy of intervention policies. We then consider the statistical models to predict tourism flows. We illustrate the methods using examples and practical part using the software R.

Detailed program

Basic statistical concepts:

- Measure of centrality
- Measure of variability
- Relationships between two variables (regression and contingency)
- Probability and random variables
- Statistical inference (estimate and hypothesis testing)

Linear regression model

- aim, definition and assumptions
- estimate
- parameter interpretation

Introduction to time series:

- definition and basic concepts
- graphical representation
- descriptive analysis

Linear operators:

- periodic and non-periodic lag operator
- periodic and non-periodic difference operator
- application of difference operators to remove trends from time series

Dynamic analysis of tourism demand:

- autoregressive (AR), moving average (MA) and non-seasonal, and seasonal mixed (ARMA) models
- non-seasonal and seasonal ARIMA models;

Predict tourism flows based on:

- deterministic and stochastic univariate models
- simple and multiple regression models

Prerequisites

None

Teaching methods

Face-to-face lectures (38 hours) and practicals (18 hours). Specifically:

- 10 two-hour in-person session delivered in a lecture-based format
- 9 two-hour in-person session delivered in a lecture-based format in the first part, and using interactive learning sequences in the second part

- 9 two-hour in-person practicals

Assessment methods

A written exam consisting of theoretical questions, exercises, and the interpretation of the results jointly with a report concerning the analysis of tourism data using the software R. The written exam assesses the knowledge of the methods introduced, the student's ability to choose the adequate statistical method given a specific research question, and the ability to interpret results. The report assesses the ability to implement the analysis in R. The final grade is the of the written exam (weight 80%) and the report (weight 20%) grade

Textbooks and Reading Materials

Slides and material on the e-learning page

Reference books:

- Pasetti, P. (2002). Statistica del turismo. Carocci editore
- Metcalfe, A. V., Cowpertwait, P. S. (2009). Introductory time series with R. Springer-Verlag New York
- Piccolo, D. (1990). Introduzione all'analisi delle serie storiche. La Nuova Italia Scientifica

Additional material suggested during the course

Semester

Second semester

Teaching language

Italian

Sustainable Development Goals

QUALITY EDUCATION | DECENT WORK AND ECONOMIC GROWTH