UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Statistica dell'Ambiente Fisico-Sociale

2425-2-F7601M007-F7601M017M

Learning objectives

The course will give to the students the advanced statistical knowledge necessary to independently perform quantitative analysis and interpretation of the results concerning the tourism phenomena.

Contents

During the course of the *Territorial and social statistics* will be presented the methods of univariate and multivariate statistical analysis with special focus on those most commonly used for the analysis , where for the environment is understood as a territory and as the one constituted by the conditions of life and work, from income level, educational level and the community to which an individual belongs. The course will illustrate the use of the SPSS software for the solution of real problems.

Detailed program

Agresti A., Finlay B. “Statistical Methods for the Social Sciences” *Pearson International Edition (fourth Edition)*

1. Introduction

- Introduction to Statistical Methodology

- Descriptive Statistics and Inferential Statistics

- The Role of Computers In statistics

2. Sampling and Measurement

- Variables and their measurement
- Randomization
- Sampling Variability and Potential Bias

3. Descriptive Statistics

- Describing Data with Tables and Graphs
- Describing the Center of the Data
- Describing Variability of the Data
- Measures of Position
- Bivariate Descriptive Statistics
- Sample Statistics and Population Parameters

4. Analyzing Association between Categorical Variables

- Contingency tables
- Chi-Squared Test of Independence
- Residuals: Detecting the Pattern of Association
- Measuring Association In Contingency Tables

5. Linear regression and correlation

- Linear Relationships
- Least Squares Prediction Equation
- The Linear Regression Model
- Measuring Linear Association: the Correlation
- Inference for the Slope and Correlation

6. Introduction to multivariate relationship

- Association and Causality
- Controlling for Other Variables
- Types of Multivariate Relationships

7. Multiple Regression and Correlation

- The Multiple Regression Model

- Example with Multiple Regression Computer Output

- Multiple Correlation and R^2

- Inference for Multiple Regression Coefficients

- Comparing Regression Models

- Partial Correlation

- Standardized Regression Coefficients

8. Combining Regression and ANOVA: Quantitative and Categorical Predictors

- Regression with Quantitative and Categorical Predictors

Prerequisites

Univariate descriptive statistics

Teaching methods

The module includes 20 hours of didactic activity (lectures in the classroom) and 8 hours of interactive activity in the statistical laboratory (using SPSS).

If the laboratories are unavailable due to building renovations, part of the laboratory activities will be conducted in person (about 2 hours) and part remotely (about 6 hours).

Assessment methods

The assessment includes:

- a personal written test on the theoretical knowledge of the topics;
- a group project, which includes an oral presentation and a report on an original survey on the topic of tourism.

The final grade for the module will be a weighted average of the personal test (weight: 30%) and the group project (weight: 70%).

Textbooks and Reading Materials

Agresti A., Finlay B. “Statistical Methods for the Social Sciences” *Pearson International Edition (fourth Edition).*

Semester

Second semester

Teaching language

English

Sustainable Development Goals

SUSTAINABLE CITIES AND COMMUNITIES