**APPLIED STATISTICS**

**Course Code: GIS-231**

Credit hours: 3 (3+0)

Prerequisites: None

**Specific Objectives**

To introduce skills and techniques for analysis and interpretation of statistical data and its application in planning

**Content List**

* The organization of data, data types
* Statistical tabulations; time series, presentation of data, bar chart; pie chart; plotting the frequency distribution; histogram; plotting time series; scatter diagram
* Descriptive statistics, arithmetic mean; median; mode; standard deviation; variability in sample data and their application in planning.
* Index numbers and their interpretation; using an index to deflate a series
* Time series, the components of a time series; calculation of the trends; exponential smoothing; calculation of seasonal variation; series with seasonal Variation eliminated; importance of residuals; forecasting from the time series; additive or multiplicative models
* Probability, measuring probability; three approaches to probability; the laws of probability and their applications; tree diagrams; conditional probability; independence and correlation. Probability distribution; normal distribution
* Binomial distribution; mean and standard deviation of a binomial distribution
* Poisson distribution
* Non-parametric statistics, Chi-square and its interpretation, etc.

**Proposed Teaching Methodology**

* Lecturing
* Demonstration
* Use of related software

**Proposed Assessment (theory, 100%)**

 **Mid Term (40%)**

* Written long/short questions, quizzes etc

**Final Term (60%)**

* Written long/short questions, quizzes etc

**Recommended Books**

1. Joseph F. Healey (2012),*Statistics: A Tool for Social Research*; Cengage Learning.
2. Stanislav Kolenikov et al. (2010),*Statistics in the social sciences: current methodological developments*, John Wiley and Sons.
3. Jay A. Weinstein (2010),*Applying Social Statistics: An Introduction to Quantitative Reasoning in Sociology*,Rowman and Littlefield.
4. J. P. Marques de Sá (2003),*Applied statistics: using SPSS, STATISTICA, and MATLAB,* Volume 1; Springer.