



# Descriptive Statistics With R Software

**Prof. Shalabh**

Mathematics  
IITK

**TYPE OF COURSE** : Rerun | Elective | UG/PG  
**COURSE DURATION** : 8 weeks (23 Aug' 21 - 15 Oct' 21)  
**EXAM DATE** : 24 Oct 2021

**Dr. Prashant Jh**

Mathematics  
NIT

**INTENDED AUDIENCE:** UG students of Science and Engineering. Students of humanities with basic mathematical and statistical background can also do it. Working professionals in analytics can also do it.

**PRE-REQUISITES:** Mathematics background up to class 12 is needed. Some minor statistics background is desirable

**INDUSTRIES SUPPORT** :All industries having R & D set up will use this course.

**COURSE OUTLINE :**

Any data analysis is incomplete without statistics. After getting the data, any statistical analysis starts with descriptive statistics which aims to extract the information hidden inside the data. The tools of descriptive statistics are based on mathematical and statistical functions which are to be evaluated using the software. The statistical software are paid as well as free. Most of the statistical software are paid software. A popular free statistical software is R. What are the basic tools of descriptive statistics and how to use the R software for descriptive statistical analysis is the objective of the course to be taught

**ABOUT INSTRUCTOR :**

Dr. Shalabh is a Professor of Statistics at IIT Kanpur. His research areas of interest are linear models, regression analysis and econometrics. He has more than 23 years of experience in teaching and research. He has developed several web based and MOOC courses in NPTEL including on regression analysis and has conducted several workshops on statistics for teachers, researchers and practitioners. He has received several national and international awards and fellowships. He has authored more than 75 research papers in national and international journals. He has written four books and one of the book on linear models is co- authored with Prof. C.R. Rao.

Dr. Prashant Jha is an Assistant Professor in the Department of Mathematics at NIT Sikkim. His research areas of interest are nonparametric regression, and shape restricted regression. He has recently completed his Ph.D. from the Department of Mathematics and Statistics, IIT Kanpur. He has worked as a Teaching Assistant in several MOOC courses in NPTEL including Introduction to R software and Descriptive statistics with R software. He has received NBHM Research Award, and CSIR fellowship for Research during his Ph.D.

**COURSE PLAN :**

Week 1: Calculations with R Software

Week 2: Introduction to Descriptive Statistics, frequency distribution

Week 3: Graphics and Plots

Week 4: Central Tendency of Data

Week 5: Variation in Data

Week 6: Moments, Association of Variables

Week 7: Association of Variables

Week 8: Association of Variables, Fitting of Linear Models