MDA102
STATISTICAL METHODS

Lecture 2
June 23, 2020 6.30AM-8.30AM

MISSION
CHRIST is a nurturing ground for an individual's holistic development to make effective contribution to the society in a dynamic environment

VISION
Excellence and Service

Syllabus- continued

UNIT 1 - R AND R STUDIO

- Getting started with R
- installing R and R studio - getting help - installing and loadi
- simple arithmetic calculations
- data structure expressions
- conditional statements functions loops
- R markdown
- introduction to Statistics - probability and data with R
- Lab assignments in R

Syllabus- continued

UNIT 2 - EXPLORATORY DATA ANALYSIS

- Visualizing numerical data - graphing systems available in
- descriptive Statistics – measures of central tendency and d
- correlation
- exploring categorical variables
- Lab assignments in R

Syllabus- continued

UNIT 3 - PROBABILITY AND PROBABILITY DISTRIBUTIONS

- Introduction - disjoint events - general addition rule indepen
- disjoint vs. Independent - conditional probability - probabilit
- normal distribution - evaluating the normal distribution - wo
- Binomial distribution - normal approximation to binomial - v
- Lab assignments in R

Syllabus- continued

UNIT 4 - ESTIMATION

- Introduction to Inference
- sampling from population
- maximum likelihood estimator
- Least square estimator
- confidence interval (CI) (for a mean)
- accuracy vs. Precision – required sample size for mean
- CI (for the mean) examples
- Lab assignments in R

Syllabus- continued

UNIT 5 - TESTING OF HYPOTHESIS

- hypothesis testing (HT) - decision errors
- large sample and small sample tests
- inference for other estimators - significance vs. confidence
- statistical vs. practical significance
- inference for proportions
- Lab assignments in R

Books

- Grolemund G., Hands-on programming with R: write your own functions and simulations, O' Reilly Media Inc., 2014. https://rstudio-education.github.io/hopr/

Books

- Peng R. D, R programming for data science, Leanpub, 2016. https://leanpub.com/rprogramming

Books

- Gupta, S.P. Statistical methods, Sultan Chand & Sons publications, 2017

Books

- David Diez, Mine Cetinkaya-Rundel, and Christopher Barr, OpenIntro Statistics, Leanpub, 2019

https://leanpub.com/openintro-statistics