Ambedkar University Delhi

Course Outline

Winter Semester (January-May 2018)

School: Undergraduate Studies

Programme with title: BA (Honours) Mathematics

Semester to which offered: IV semester

Course Title: Probability and Statistics

Credits: 4 Credits

Course Code (new):   SUS1MA507

Course Code (old):   M09

Type of Course:

Compulsory	Yes	Cohort	BA (H) Mathematics
Elective	yes	Cohort	BA (H) Economics

For SUS only (Mark an X for as many as appropriate):

1. Foundation (Compulsory)
2. Foundation (Elective)
3. Discipline (Compulsory)   X
4. Discipline (Elective)
5. Elective

Course Coordinator and Team: Subhash Chandra(CC), Kushal Lalwani.

Email of course coordinator: sahusubhash77@gmail.com

Pre-requisites: Mathematics at the XII grade level.

Aim: The aim of the course is to introduce students to foundations of probability and statistics. The course begins with familiar concepts of classical probability (XII grade level) and then moves on to an axiomatic setting. The emphasis while studying probability as well as random variables will be to do just enough theory to be able to understand connections with real life problems. The distributions will also

form a basis for setting up the statistical tests. Sampling, sampling distribution, large sample tests and exact sample tests will be studied. There will be about 12-16 hours of Lab Work using spread-sheet programmes for performing data analysis based on distributions as well as statistical tests.

Main Modules:

1. **Basic probability**
2. **Random variables**, **Discrete and Continuous Random Variables**, **Empirical Distributions**
3. **Sampling distributions and Hypothesis testing**
4. **Regression and Correlation**

Assessments:

Components	Weightage	Schedule
1. Class Test	10%	Second week of February
2. Mid Semester Test	25%	As per AUD timetable
3. Presentation/Viva	15%	First week of April
4. End Semester Test	35%	As per AUD timetable
5. Tutorial Assessment/Lab	15%	Throughout the semester

Main Reference:

1. Sheldon Ross, A First Course in Probability, Academic Books, 2002.
2. Irwin Miller and Marylees Miller, Mathematical Statistics with Applications, 7th Edition, Pearson.
3. Larsen and Farber, Elementary Statistics, 4th or 5th Edition, Prentice Hall Inc, 2011.
4. Grimmet and Welsh, Probability: An Introduction, Oxford Science Publication, 1986.