

**Instructor:** Siva Athreya  
**Office:** A 12.

**Class Hours:** Tuesday and Thursday: 08:55-10:30am

**Texts:**

1. Probability and Statistics with Examples using R

**E-Mail:** My e-mail address is **athreya@isibang.ac.in**. Please send me an email, from an account that you use regularly, so that I can put you on the class list.

**WWW-page:** I shall maintain a course home-page, at the following address:  
<http://www.isibang.ac.in/~athreya/Teaching/bp>. I shall also maintain the same archive on Moodle. These pages should serve as an archive of handouts at the very least.

**Syllabus:** Orientation. Combinatorial probability. Fluctuations in Coin Tossing and Random Walks. Combination of Events, Occupancy and Matching Problems. Conditional probabilities. Urn Models. Independence. Random Variables, discrete distributions, Expectation, variance and moments, probability generating functions and moment generating functions, Tchebychevs inequality. Standard discrete distributions: uniform, binomial, Poisson, geometric, hypergeometric, negative binomial. Continuous random variables: univariate densities and distributions, Expectations, variance and moments, standard univariate densities: normal, exponential, gamma, beta, chi-square, Cauchy. Joint and conditional distributions, Independence of random variables, Transformation of variables. Laws of Large Numbers and Central Limit Theorem (Proofs optional)

**Classes:** We will have classes on zoom platform. Please sign up for a basic zoom account and join meetings using that account.

**Scoring:** Final Exam 40%, Homework 60% [ Weekly Homework 5%, Take home Quiz(s) 35% , In-class Worksheets 15 %]

**Feedback:** Please feel free to send a text on Zoom contact group, to clear up difficulties or to just discuss mathematics. I would appreciate feedback from you as the course progresses. If there are suggestions/clarifications that you have then feel free to ask me.