Cheat Sheet

Summary statistics
· Mean μ, Median, Mode
· Standard deviation σ, Variance σ^2, IQR
· Correlation $r = Corr(X, Y)$

Probability
· Conditional probability $P(B|A)$
· Independence $P(B|A) = P(B)$
· Bayes Theorem $P(B|A) = P(A|B)\frac{P(B)}{P(A)}$

Random variables X (numerical outcome of a random experiment)
Random process (repeated sequence of random variable trials)

Distribution of probability
· Binomial $B(n, p)$ from Bernouilli (0/1) processes
· Normal $N(\mu, \sigma^2)$ from sum of idd random variables

Central Limit Theorem
· $\bar{X} = \frac{X_1+...+X_n}{n} \xrightarrow[n\to\infty]{} N(\mu, (\frac{\sigma}{\sqrt{n}})^2)$
· $Z = (\frac{\bar{X}-\mu}{\sigma/\sqrt{n}}) \xrightarrow[n\to\infty]{} N(0, 1)$