

STA 371G Outline

Spring 2014

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Office Hours: Tuesday Thursday 3:30-4:30 PM and by appointment

Tuesday, January 14

Topics:

- Introduction
- Probability
- Random variables
- Probability distributions
- Mean, variance and standard deviation of a random variable

Reading Assignments:

If you are not familiar with the topics discussed in class, you are recommended to read:

pp. 156-168, 189-195, of Data analysis and decision making, 4th edition

or

pp. 196-206, 225-231 of Data analysis and decision making, 3rd edition

To learn more about these topics, you may further read:

Chapters 2.1, 2.2, 2.4, and 2.5 of OpenIntro Statistics, 2nd edition

Thursday, January 16

Topics:

- Add a constant to a random variable
- Multiply a random variable by a constant
- Conditional, joint and marginal probabilities
- Independent random variables, sum of independent random variables
- Continuous random variables
- Normal distribution $X \sim \mathcal{N}(\mu, \sigma^2)$
- Probability density function: area under the curve represents probability

- Standard normal distribution $Z \sim \mathcal{N}(0, 1)$
- Normal calculations in Excel: NORMSDIST, NORMDIST, NORMINV, NORMSINV or R: pnorm, qnorm (type “?pnorm” and “?qnorm” in R for help).
- Understand the meaning of the standard deviation σ in a normal distribution: $P(\mu - \sigma < X < \mu + \sigma) = ?$ and $P(\mu - 2\sigma < X < \mu + 2\sigma) = ?$

Reading Assignments:

To get familiar with the normal distribution, you are recommended to read:

pp. 211-215, 217-225 of Data analysis and decision making, 4th edition

or

pp. 247-250, 253-260 of Data analysis and decision making, 3rd edition

You may further read:

Chapters 3.1.1, 3.1.2, 3.1.4 and 3.1.5 of OpenIntro Statistics, 2nd edition