



# BINF702 FALL 2006

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## CHAPTER 1 – GENERAL OVERVIEW

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## What is Statistics?

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- Def. – Statistics is the science whereby inferences are made about specific random phenomena on the basis of relatively limited sample material.
- Def. – Mathematical statistics concerns the development of new methods of statistical inferences and requires advanced mathematics for its implementation.
- Applied statistics involves the application of statistics to specific domain areas.
- Biostatistics is the area of applied statistics that studies the application of statistics to problems in the medical and biological sciences.

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## Topics for Study in Our Course

- Experimental design.
- Exploratory data analysis.
  - Inferential statistics.
  - Descriptive statistics.
- Probability.
- Probability distributions.
  - Discrete probability distributions.
  - Continuous probability distributions.
- Estimation.
- Hypothesis testing.
- Categorical data analysis.
- Regression.

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## Our Computational Engine

- We will use R for our computational engine.
- Free.
- Runs under Microsoft Windows, LINUX, and MacOS.

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