

Lecture 1

First Meeting & Introduction to Statistics and Data Analysis I

Lecture Information

Ceng272 *Statistical Computations* at February 15, 2012

First Meeting

Lecture Information

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Grading Criteria & Policies

Introduction to Statistics and Data Analysis

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Dr. Cem Özdoğan
Computer Engineering Department
Çankaya University

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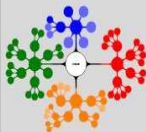
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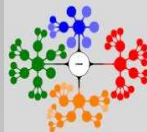
2 Introduction to Statistics and Data Analysis

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- CENG 272 Statistical Computations Spring 2012



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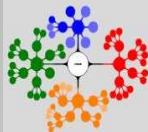
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- WEDNESDAY 13:40-15:30 H-127



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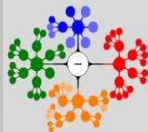
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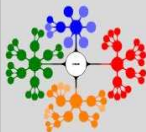
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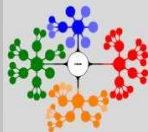
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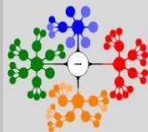
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- **WEB page:**
<http://siber.cankaya.edu.tr/ozdogan/StatisticalComputations/spring2012/index.html>



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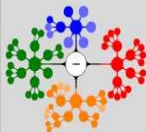
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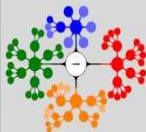
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- All/Some the example Minitab files will be accessible via the link ??????.



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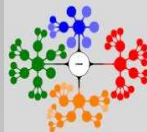
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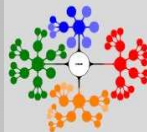
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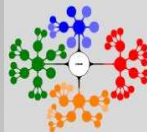
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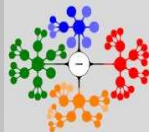
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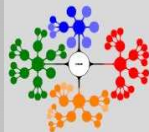
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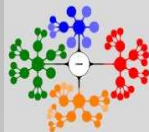
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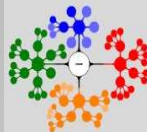
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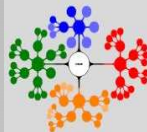
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- You are responsible for all such announcements, as well as announcements made in lecture.



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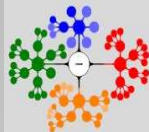
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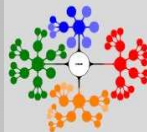
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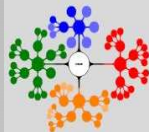
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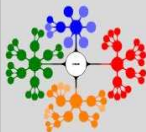
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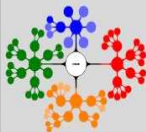
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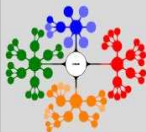
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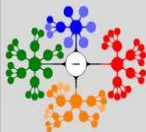
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 - **Random variables and their distributions.**



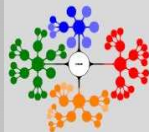
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 - **Sampling distributions - Sampling, law of large numbers, central limit theorem.**



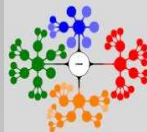
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 - **Understand confidence intervals and perform statistical inference such as hypothesis testing and regression??**



Text Book

- **Required:** Readings will be assigned in Probability & Statistics for Engineers & Scientists, 8/E by Ronald E. Walpole, Raymond H. Myers, Sharon L. Myers, Keying Ye, Prentice Hall, 2006.



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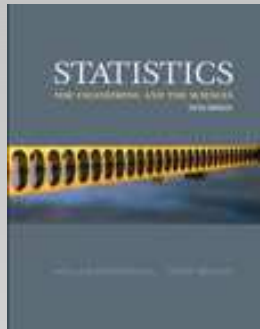
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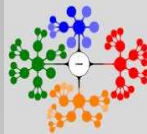
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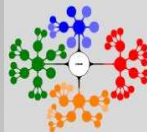


Recommended



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- There will be a midterm and a final exam, will count 25% and 45% of your grade, respectively.



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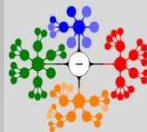
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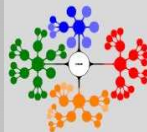
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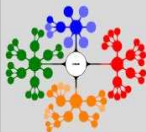
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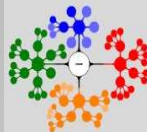
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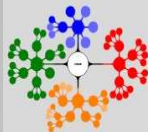
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- The code/homework you submit must be written completely by you. You can use anything from the textbook/notes with a clear understanding.



Computational Statistics vs Statistical Computation

- Computational statistics is statistics that uses computation, often a lot of computation,



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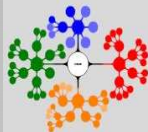
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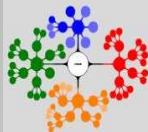
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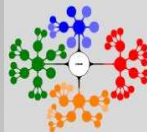
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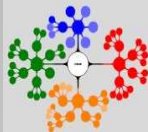
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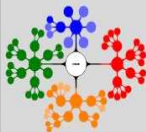
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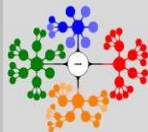


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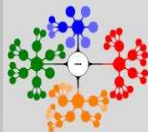
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 - in statistical computation the emphasis is on the tools.
- Statistics means numerical descriptions to most people.
- Statistics does not just mean numerical fact, collection or summarization of the data.
- It also means that the whole body of systematic methods for collecting, summarizing, analyzing and interpreting data, and to make **decisions**.

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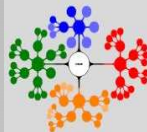
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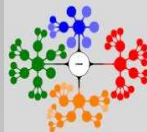
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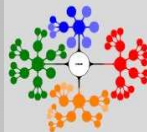
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Introduction to Statistics and Data Analysis

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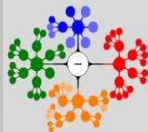
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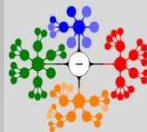
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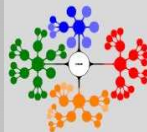
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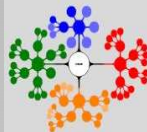
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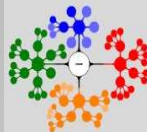
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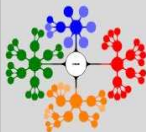
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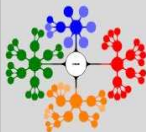
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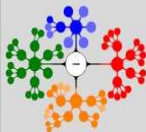
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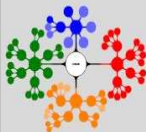
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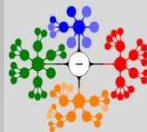
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 - 2 Descriptive statistics



Inferential Statistics I

- *Inferential statistics* are the mathematical procedures hereby we convert information about the sample into intelligent guesses about the population.



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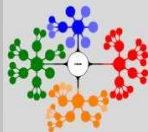
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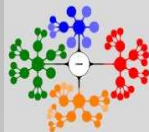
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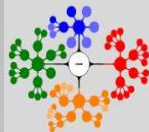


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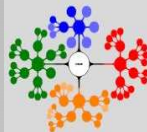
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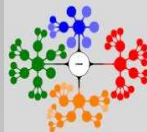
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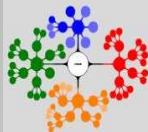


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Inferential Statistics II

- Example: a manufacturer of computer boards wish to eliminate defects



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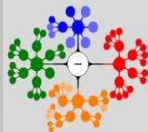
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Inferential Statistics II

- Example: a manufacturer of computer boards wish to eliminate defects
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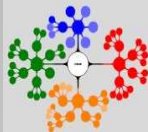
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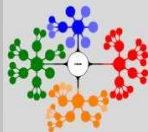
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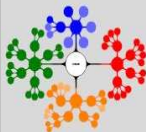
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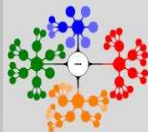


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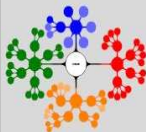




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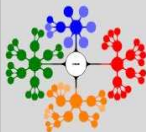
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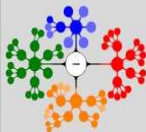
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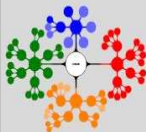
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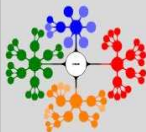
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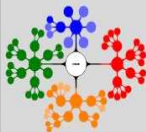
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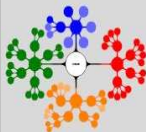
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- With inferential statistics, we are trying to make inferences from our data to more general conditions.

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