# Table of Contents

1. General Information
2. Additional Information
3. WAMAP
4. Simulated Data
5. Week by Week
6. Reference by topic
   * Descriptive statistics
   * Probability
   * Inferential statistics
   * Applications and sampling methods
7. Special Topics
8. Pencil and Paper assignments
9. Links to the material from the On Line Stats Book

## General Information

* General introduction to the course
* Syllabus
* Contact information
* How to submit homework
* Map of the course
* Introduction to statistics (HTML)
* Introduction to statistics (PDF)

### Additional Information

* Some useful sources available on the Web
* Notation we use in this course (HTML)
* Notation we use in this course (PDF)
* Software tools that we use in this course
* How to write Math on a computer

#### **WAMAP (quiz site for our course)**

* Access to WAMAP
* Using WAMAP (e.g., how to answer quizzes with math formulas)

#### **Simulated Data**

##### Basic data

* Basic data files (Gnumeric)
* Basic data files (ODS)
* Basic data files (XLS)

##### Linear regression (week 8)

* Linear regression (Gnumeric)
* Linear regression (ODS)
* Linear regression (XLS)

##### Advanced data (for 211 students)

* Advanced data files (Gnumeric)
* Advanced data files (ODS)
* Advanced data files (XLS)

## Week by Week

* Week 1: Introduction
* Week 2: Descriptive Statistics
* Week 3: Probability - Introduction
* Week 4: Probability: Limit Theorems
* Week 5: Inferential Statistics - Interval Estimation
* Week 6: Inferential Statistics - Tests: Significance
* Week 7: Inferential Statistics - Tests: Power
* Week 8: Inferential Statistics - Linear Models and Prediction
* Week 9: Applications and sampling methods
* Week 10: Review

## Reference by topic

### Descriptive Statistics

* Introduction to descriptive statistics
* Indexes of position (PDF)
* Indexes of position (HTML)
* Indexes of dispersion (HTML)
* Indexes of dispersion (PDF)
* Connections between indexes of position and indexes of dispersion (HTML)
* Connections between indexes of position and indexes of dispersion (PDF)

### Probability

* Introduction to probability - one random variable (HTML)
* Introduction to probability (PDF)
* Introduction to probability - several random variables (PDF)
* Introduction to probability - several random variables (HTML)
* More comment about random variables
* Applications of Conditional Probability

### Inferential Statistics

A quick introduction to inferential statistics

#### **Interval Estimation**

* Interval estimation (HTML)
* Interval estimation (PDF)

#### **Statistical Testing**

* Test - significance (PDF)
* Test - significance (HTML)
* The power of a test (HTML)
* The power of a test (PDF)
* Usage of Normal or Student Distribution in Estimation and Testing

#### **Linear Regression**

* Least Mean Squares estimates (PDF)
* Least Mean Squares estimates (HTML)

### Applications and Sampling Methods

Designing a Statistical Experiment

### Special Topics

* Simulating random variables
* Fat tails (HTML)
* Fat tails (PDF)
* On the use of truncated normal distributions (PDF)
* On the use of truncated normal distributions (HTML)

## Pencil and Paper Assignments

* Pencil and paper assignment #1 (week 3)
* Pencil and paper assignment #2 (week 4)
* A pencil and paper assignment on inferential statistics (for weeks 5, 6, and 7)

## Links to the material from the On Line Stats Book

* Introduction to statistics
* Descriptive statistics: graphing summaries
* Descriptive statistics: numerical indexes
* Finite probability distributions
* The normal distribution
* The distribution of samples
* Point estimations
* Interval estimation
* The logic of hypothesis testing
* Testing for the mean of a random variable
* Short examples about the power of a test
* Correlation theory
* The sample distribution of Pearson's r
* Approximate confidence intervals for Pearson's r
* Linear prediction - formulas and error estimates

Please, note that a PDF version of each chapter of the On Line Stat Book (whether we are using the particular chapter or section, or not) is available. You can download the files as ZIP archives, from this index page.