STEVENS INSTITUTE OF TECHNOLOGY
STEVENS TECHNICAL ENRICHMENT PROGRAM
BRIDGE COMPONENT

SYLLABUS: PROBABILITY AND STATISTICS
Summer 2007 (June 25th - August 3rd)

Instructor: Dragos Bozdog
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Time: Tuesdays and Thursdays (11:05am - 12:45pm) and Fridays (9:00am - 11:00am).

Textbook: *Probability and Statistics for Engineers and Scientists* (7th Edition) by Walpole, Myers, Myers, and Ye, Prentice Hall, 2002.

Objective: To provide an introduction to the foundation of probability theory and statistical inference in order to solve applied problems, and to prepare students for more advanced courses in probability and statistics. Topics include sample spaces, conditional probability and Bayes' rule, random variables, discrete distributions, expectation, descriptive statistics.

Calculator: TI83/TI84 or equivalent required and it should be brought to the class every time.

Attendance: A record of attendance will be kept and absences will decrease your grade.

Course program:

1. **Introduction to Statistics and Data Analysis** (Reading pages 1-19)

- Sampling procedures
- Measures of Location: The Sample Mean
- Measures of Variability
- Discrete and Continuous Data
- Graphical Methods and Data Description

2. **Probability** (Reading pages 22-60)

- Sample Space
- Events
- Counting Sample Points
- Probability of an Event
- Additive Rules
- Multiplicative Rules
- Bayes' Rule

3. **Random Variables and Probability Distributions** (Reading pages 63-83)
- Random Variable
- Discrete Probability Distributions
- Joint Probability Distributions

4. **Mathematical Expectation** (Reading pages 88-102)
- Mean of a Random Variable
- Variance and Covariance

5. **Discrete Probability Distributions** (Reading pages 115-135)
- Discrete Uniform Distribution
- Binomial and Multinomial Distributions
- Hypergeometric Distributions
- Negative Binomial and Geometric Distributions

6. **Fundamental Sampling Distributions** (Reading pages 194-210)
- Random Sampling
- Some Important Statistics
- Data Display and Graphical Methods
- Sampling Distributions
- Sampling Distributions of Means

Grading Policy: The grading for this course will be determined by quizzes, homework, and class participation:

Grade Element	% of Total Grade
(3) Quizzes	60%
Homework	30%
Participation	10%

The basis will be on 100 points. The following letter grade will be assigned to point values:

A	>90	B-	70-74	D	50-54
A-	85-89	C+	65-69	F	<50
B+	80-84	C	60-64		
B	75-79	C-	55-59		