

**Boston University Department of Biomedical Engineering**  
**ENG BE200: Introduction to Probability**  
**Syllabus and Schedule, Spring 2008/2009**

**Instructor:** Dr. Ousama A'AMAR  
**Office:** PHO515  
**Phone:** 353-0261  
**E-mail:** [oaamar@bu.edu](mailto:oaamar@bu.edu)  
**Office Hours:** Mon. 12-2 pm, Tue. 2-4 pm and by appointment

**GTF:** Aaron Blanke  
**E-mail:** [afblanke@bu.edu](mailto:afblanke@bu.edu)  
**Office:** Room 214, 64 Cummington St.  
**Office Hours:** TBA

**Lecture:** Mon, Wed 10-11 am, MSC149

**Discussion Sections:**

B1: Mon 3-4 pm, PSY B49  
B2: Wed 1-2 pm, SOC B63

**Course Website:** [http://courseinfo.bu.edu/courses/09fallengbe200\\_a1/](http://courseinfo.bu.edu/courses/09fallengbe200_a1/)

**Textbook:** I. Lipschutz & Lipson, *Schaum's Outline in Probability (2<sup>nd</sup> Ed)*  
ISBN-13: 978-0071352031  
II. S. Colburn, *Fundamentals of Probability and Statistics, BME-BU*  
(Paper pack to be ordered through the BME department)

**Grading:**

Homework: 10%  
Exam I: 25%  
Exam II: 25%  
Final: 40%

**Course Goals:**

**For students to learn about:**

- Descriptive statistics - describe probabilistic data
- Probability theory - develop mathematical models that can predict random outcomes
- Inferential Statistics - develop methods for choosing and testing mathematical models of systems that generate probabilistic outcomes

**Expected Background:** This course will use your knowledge of previous math courses you have taken e.g., Calculus.

**Prerequisites:**

CAS MA 225 - Multivariate Calculus & ENG EK 126 - Engineering Computation with C++

### Lecture Schedule:

Week	Lecture	Date	Lecture Topic	Text I	Text II
1	1	Wed 9/2	Introduction to the Course		
2		<i>Mon 9/7</i>	<i>Holiday</i>		
	2	Wed 9/9	Histograms, Sample Statistics	Appendix A.1-A.6, Solved Problems	2-2.6
3	3	Mon 9/14	Joint Histograms, Correlation, Regression		
	4	Wed 9/16	Probability, Counting: Permutations	Chapter 2,3 & Solved Problems	3-3.4
4	5	Mon 9/21	Calculation of Probabilities		
	6	Wed 9/23	Independent Experiments, Binomial Probabilities	Chapter 6.2, & Solved Problems on Binomial Distribution	4-4.5
5	7	Mon 9/28	Conditional Probability, Statistical Independence	Chapter 4	5-5.5
	8	Wed 9/30	Review	Go over HW Problems, Practice Problems	
6		<b>Mon 10/5</b>	<b>Exam I</b>		
	9	Wed 10/7	Discrete Random Variables	5.1-5.3, 5.10-5.11, Chapter 6 & Solved Problems (except problems on Expectation)	6-6.5
7		<i>Mon 10/12</i>	<i>Holiday</i>		
	10	Tue 10/13	Continuous Random Variables		
	11	Wed 10/14	Applications	5.4, 5.5, Chapter 6 & Solved problems on Expectation	7-7.5
8	12	Mon 10/19	Expectation, Variance and Standard Deviation	5.6-5.7 & Solved Problems	8-8.4, 9-9.4
	13	Wed 10/21	Joint Random Variables		
9	14	Mon 10/26	Joint Expectations, Applications	5.6-5.7 & Solved Problems	8-8.4, 9-9.4

	15	Wed 10/28	Review	Review, Go over HW Problems, Practice Problems	
10		<b>Mon 11/2</b>	<b>Exam II</b>		
	16	Wed 11/4	Markov Sequences	Chapter 7 & Solved problems	10-10.5
11	17	Mon 11/9	Inferential Statistics, Sample Distributions		
		<i>Wed 11/11</i>	<i>Holiday</i>		
12	18	Mon 11/16	Significance Tests z-test and t-test		12
	19	Wed 11/18			
13	20	Mon 11/23	Review	Review, Go over HW Problems, Practice Problems	
<i>November 25-29 Fall Break</i>					
14	21	<i>Mon 11/30</i>	Computational Lab on Probability	Handouts	
	22	Wed 12/2	Computational Lab on Probability		
15	23	Mon 12/7	Computational Lab on Statistics		
	24	Wed 12/9	Computational Lab on Statistics		
<b>FINAL EXAM: TBA (12/16 – 12/21)</b>					