Background course on Probability and Statistics + Matlab. Course outline.*

Aleksei Netšunajev

August 26, 2011

Introduction

The main goal of the course is to give introduction to the probability theory and to basics of univariate statistics. The course will consist of 3 short parts. The first part will formalize the probability theory and provide (mathematical) structure to the measure of uncertainty. In the second part the concept of random variables will be introduced and basic statistical concepts will be discussed. The third part, introduction to Matlab, will cover the most basic and practical issues. Some words about programming in general will be said. Numerical examples illustrating probability/statistics concepts will be shown and discussed. Some knowledge of undergraduate probability, statistics and calculus is required.

There will be 8 sessions of the course, 6 will be dedicated to probability and statistics and 2 will provide introduction to Matlab. At the end of each session problem set for the next session will be distributed. Solutions will be discussed in class. Handing in solutions to the problem set(s) is not required. There will be no exam in the end of the course. Useful material for the course will be available here.

*Subject to change

Topics to be covered:

Timetable

:

- 5 September. 8:45 - 10:45. Part I. Probability theory. Lecture.
- 6 September. 8:45 - 10:45. Part I. Probability theory. Lecture/Exercises.
- 7 September. 8:45 - 10:45. Part II. Statistics. Lecture/Exercises.
- 8 September. 8:45 - 10:45. Part II. Statistics. Lecture/Exercises.
- 9 September. 8:45 - 10:45. Part II. Statistics. Lecture/Exercises.
- 12 September. 8:45 - 10:45. Part II. Statistics. Lecture/Exercises.
- 14 September. 8:45 - 10:45. Part III. Matlab. Introduction.
- 16 September. 8:45 - 10:45. Part III. Matlab. Examples.

Reading List and Useful Material

:

1. Lee J. Bain, Max Engelhardt. (1992). Introduction to probability and mathematical statistics.
2. Robert V. Hogg, Allen T. Craig. (1995). Introduction to mathematical statistics.
3. Ron C. Mittelhammer. (1996). Mathematical Statistics for Economics and Business.
4. Matlab Tutoral by The University of Michigan
5. Matlab Help Library