PROBABILITY SYLLABUS, Fall Semester 2011
Budapest Semesters in Mathematics

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Text is:	*A First Course in Probability*, Sixth or Seventh or Eighth Edition by S. Ross
Course homepage:	www.math.bme.hu/~balazs/pro/

Course Description: This is a first course on the mathematical phenomenon of uncertainty and techniques used to handle them. Not only being challenging itself, this field is of increasing interest in many areas of engineering, economical, physical, biological and sociological sciences as well. In this course we cover the basic notions and methods of probability theory, also giving emphasize on examples, applications and problem solving. Briefly, the topics include probability in discrete sample spaces, methods of enumeration (combinatorics), conditional probability and independence, random variables, properties of expectations, the Weak Law of Large Numbers, and the Central Limit Theorem.

Probability is a conceptually difficult field, although it might seem easy and straightforward at first. One has to distinguish between very different mathematical objects, and find their connection to real-life situations within the same problem. Therefore it is very important to follow classes and deeply understand the material during the semester.

Grading and assignments: There will be two in-class exams, weekly homeworks to be handed in during the semester, and a final exam.

- **Two in-class exams** will be scheduled soon. The first exam will be on Chapters 1, 2 and 3, the second one will be on Chapters 4, 5 and 6. **Each** worth **160 points** (each 20% of the total possible points).

- **13 homework sets** are to be handed in during the semester. **Each** worth **20 points**, the worst of all homeworks will be dropped. This way, a **total** of **240 points** (30% of the total possible points) can be earned from these assignments. Solving the homework problems by no means guarantees that you have the necessary level of practice. Please do other exercises (and check the answers in the back of the book *after* solving them) until you feel safe with problems on the topics in question. It is a good idea to simulate exam-like situations: solve exercises in limited time, without the use of the book or your notes (or your classmates).

- **The final exam** will be scheduled soon. Half of it will cover Chapters 1 to 6, the other half is on Chapters 7 and 8 of the book. It worth **240 points** (30 % of the total possible points).

- **Bonus questions** are also to be found in the homework sets. While a total of 800 points can be earned by the exams and homeworks, an additional **4 points** can be given for a solution of each bonus problem.

Grades will be based on the total of 800 points approximating the following standards:

Grade	Points
A$^+$	≥ 775
A	$\in [745,\ 775)$
A$^-$	$\in [720,\ 745)$
B$^+$	$\in [695,\ 720)$
B	$\in [665,\ 695)$
B$^-$	$\in [640,\ 665)$
C$^+$	$\in [615,\ 640)$
C	$\in [585,\ 615)$
C$^-$	$\in [560,\ 585)$
D	$\in [480,\ 560)$
F	< 480

Because of this standard, you are not in competition with your classmates nor does their performance influence positively or negatively your performance. You are encouraged to form study/problem groups with your classmates; things not clear to you may become obvious when you try to explain them to others or when you hear other points of view. Sometimes just verbalizing your mathematical thoughts can deepen your understanding. However, if you discuss with others the exercises, each person should write up her/his own version of the solution. Please note that much less can be learned by just understanding and writing up someone else's solution than by coming up (or even just trying to come up) with original ideas and solving the problem.

Please feel free to contact me any time outside class via e-mail, phone, or in person if you have questions or suggestions about this course.

A detailed course schedule will be posted here before classes start.