Syllabus for
Methods in Applied Mathematics I, 2007

Akihito Hora (Graduate School of Mathematics)

1. Plan of the course

I will introduce typical limit theorems in probability theory by taking the well-known coin tossing model as a fundamental example. Each limit theorem has its own characteristic scale. Five lectures are scheduled as follows.

    (i) Probability model of coin tossing

    (ii) Weak law of large numbers

    (iii) Central limit theorem

    (iv) Large deviation principle

    (v) Strong law of large numbers

2. Aim of the course

- Getting familiar with probability models
- Practicing mathematics in English

3. Method of evaluation

I will give report problems (about 4 or 5 in total) in the lectures. You are expected to make reports on (at least) 2 problems chosen from them. The reports should be written in English, of course.

The final grade will be decided by unifying the evaluations of four instructors.

4. References

As an accessible book with no prerequisites needed,

D. Applebaum, Probability and Information, Cambridge Univ. Press, 1996.

As a much more comprehensive one,

R. Durrett, Probability: Theory and Examples, Duxbury Press, 1991.

5. Office hours

12h – 13h on every Wednesday at A441 (Hora's office).