

**Math 595: Advanced Topics in Mathematics.**

**Title: Analytic and Probabilistic Aspects of Continued Fractions**

Spring 2009

CRN 49979, Section APA

MWF 03:00-03:50 pm, 345 Altgeld

Instructor: Florin Boca

Continued fractions, both one and multi-dimensional, arise in a large number of instances in mathematics. We plan to discuss certain connections between continued fractions and functional analysis, probability, ergodic theory, and dynamical systems. Topics will include: Gauss-Kuzmin-Levy theory, Perron-Frobenius type operators, elements of dynamics on homogeneous spaces, symbolic dynamics, multi-dimensional continued fraction algorithms, AF algebras.

**Prerequisite:** Math 540 or approval of instructor.

**Textbook:** There is no required textbook.