THỜI KHÓA BIỂU TRƯỜNG HÈ QUỐC TẾ

Viện Toán học, ngày 20/6 đến 1/7/2022

	Mon (20/6)	**Tue (21/6)**	**Wed (22/6)**	**Thu (23/6)**	**Fri (24/6)**
Morning 8:30-11:45	Basic course: Algebra *(TS. Trần Giang Nam)*	Basic course: Algebra *(TS. Trần Giang Nam)*	Basic course: Algebra *(TS. Trần Giang Nam)*	*Examination: Algerbra* *Examination: Analysis*	Python coding *(TS. Nguyễn Văn Hậu)*
Afternoon 13:30-16:45	Basic course: Analysis *(TS. Hồ Minh Toàn)*	Basic course: Analysis *(TS. Hồ Minh Toàn)*	Basic course: Analysis *(TS. Hồ Minh Toàn)*	**13:30-14:30:** Special talk 1 (*GS.TSKH. Đinh Dũng)* **14:30-15:00:** Tiệc trà **15:00-16:00:** Special talk 2 (*TS. Nguyễn Đăng Hợp)*	Python coding *(TS. Nguyễn Văn Hậu)*
	Mon (27/6)	**Tue (28/6)**	**Wed (29/6)**	**Thu (30/6)**	**Fri (01/7)**
Morning 8:30-11:45	Brief introduction to Stochastic Calculus *(TS. Phạm Việt Hùng)*	Brief introduction to Stochastic Calculus *(TS. Phạm Việt Hùng)*	Stochastic Simulation and Monte Carlo method *(PGS.TS. Ngô Hoàng Long)*	Introduction to quantitative finance *(TS. Lưu Hoàng Đức)*	Introduction to quantitative finance *(TS. Lưu Hoàng Đức)*
Afternoon 13:30-16:45	Stochastic Simulation and Monte Carlo method *(PGS.TS. Ngô Hoàng Long)*	No-arbitrage pricing theory *(TS. Châu Ngọc Huy)*	Introduction to quantitative finance *(TS. Lưu Hoàng Đức)*	No-arbitrage pricing theory *(TS. Châu Ngọc Huy)*	

Tiệc trà buổi sáng:10:00 – 10:15

Tiệc trà buổi chiều: 15:00 – 15:15

Link học trực tuyến: https://meet.google.com/yhc-wzut-tkg?pli=1&authuser=2

Lớp học trực tiếp tại địa chỉ: Hội trường 301, nhà A5, Viện Toán học, 18b Hoàng Quốc Việt, Cầu Giấy, Hà Nội.

1. Title: Stochastic Simulation and Monte Carlo method
Speaker: PGS.TS. Ngô Hoàng Long (Đại học Sư phạm Hà Nội)
Abstract: This 5-hour course covers some basic knowledge of stochastic simulation, which includes:
- Convergence of random variables; Strong laws of large numbers; Central limit theorem;
- Simulation algorithms for simple probability distributions;
- Monte Carlo simulation and variance reduction methods;
- Error estimates for Monte Carlo method;
- Simulation of Brownian motion, compound Poisson process, and Markov chain.

2. Title: No-arbitrage pricing theory
Speaker: TS. Châu Ngọc Huy (The University of Manchester)
Abstract: this minicourse introduces basic concepts and results of the no-arbitrage pricing theory:
- Discrete-time market models. The Dalang–Morton–Willinger theorem;
- The Black-Scholes model. Fundamental theorem of Asset Pricing;
- The Black-Scholes equation. Delta hedging;
- Girsanov's theorem. Pricing by the martingale method.

3. Title: Introduction to quantitative finance
Speaker: TS. Lưu Hoàng Đức (Viện Toán học)
Abstract:
- Financial markets: structures and instruments;
- Statistical facts of financial data;
- Portfolio selection theory;
- Term structure models for interest rates;
- Volatility modeling;
- Risk measures.

4. Title: Brief introduction to Stochastic Calculus
Speaker: TS. Phạm Việt Hùng (Viện Toán học)
Abstract:
- Preliminaries: Probability space, Independence, Random variable;
- Conditional Expectation and Martingale;
- Brownian motion;
- Stochastic Ito integral and Ito formula;
- Stochastic differential equations.

Special talk 1
Title: High-dimensional approximation and applications
Speaker: GS.TSKH. Đinh Dũng (Đại học Quốc gia Hà Nội)
Abstract: We give a short survey on some high-dimensional problems and their applications including:
- The "curse" of dimensionality and how to overcome it;
- Hyperbolic cross approximation and sparse-grid sampling recovery;
- Computational uncertainty quantification for stochastic and parametric PDEs;
- High-dimensional approximation by deep ReLU neural networks;
- High-dimensional integration.

Special talk 2
Title: Magic squares of given sizes
Speaker: TS. Nguyễn Đăng Hợp (Viện Toán học)
Abstract: An nxn matrix is called a magic square if its entries are non-negative integral numbers, and the sum of entries in each row and each column is equal to the same number r. Denote by H(n,r) the number of such magic squares, so for example H(1,r)=1 and H(2,r)=r+1. We will discuss what can be said about these numbers H(n,r).