• **Hours/Room:** W 12:40 - 13:30  FENS L063  
  R 12:40 - 14:30  FENS L029

• **Instructor:** Semih Sezer  
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  Phone: 0216 483 9856

• **Course description:** The course aims to introduce the Monte Carlo methods and techniques used in mathematical finance. Many problems of mathematical finance involve computing expectations and probabilities. Pricing various derivatives, computing default/ruin probabilities, finding optimal/well-performing portfolios are some examples of such problems. In the course, after discussing the basics of probability and simulation, we learn how Monte Carlo methods apply to these problems. Implementations are illustrated with R.

• **Reference material:**  
  - Lecture discussions (additional material/content we discuss and write on the board)  
  - R Tutorials on SUCourse+

• **Tentative schedule:**  
  - Mathematical foundations  
  - Variable generation techniques  
  - Sample path generation  
  - Variation reduction methods  
  - Implementations on various problems

• **Grading policy and other items:**

  There will be one midterm and one final. Both will be in class (non-online) exams. Their weights are as follows:  
  - Midterm: 45%  
  - Final: 55%

  Midterm date will be announced later  
  Final date will be announced by the Student Resources.