MAP6467–Stochastic Differential Equations

Stochastic Differential Equations
Instructor and Office Hours
Office Hours: MWF 4, or by appointment.
Email: mrao@ufl.edu

Homework, Problems and Exams
Homework: Presentation of some class material

Prerequisites
MAA 6616 and 6617 or equivalent

Grading:
Grading will be based on class presentations

Objective of the Course:
Stochastic integrals differ from ordinary integrals in a fundamental fashion. Our goal in this course is to introduce this concept using martingales instead of Brownian motion.

Tentative Weekly Schedule:
08/22 – 08/26: Review of nomenclature, Filtration, Conditional Expectations, Martingales, Examples and Applications
08/29 – 09/02: Martingales continued: Optional Sampling Theorem, Martingale Inequalities, Maximal Inequalities, Martingale Convergence.
09/07 – 09/09: Examples
09/12 – 09/16: Increasing Processes and Change of Variables
09/19 – 09/23: Semimartingales, Time Change
09/26 – 09/30: Stochastic Integrals
10/03 – 10/05: Stochastic Integrals continued
10/10 – 10/14: Quadratic Variation
10/17 – 10/21: Itô’s Formula
10/24 – 10/28: Itô’s Formula and Applications
10/31 – 11/04: Previsible Processes
11/07 – 11/09: Classification of Stopping Times
11/14 – 11/18: Decomposition of Martingales
11/21 – 11/21: Quasimartingales
11/28 – 12/02: Quasimartingales continued
12/05 – 12/07: Compensators and Examples

Teaching Evaluation: Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at https://evaluations.ufl.edu.

Academic Honesty: The course will be conducted in accordance with the University honor code and academic honesty policy, which can be found in the student guide.

Accommodation for Student with Disabilities: Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.