

COURSE DESCRIPTION
FINANCIAL MATHEMATICS MA 484/584-2C
FALL 2014

DEPARTMENT OF MATHEMATICS
UNIVERSITY OF ALABAMA AT BIRMINGHAM

Course Instructor: Professor P. Jung

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Office Hours: MW 1-2pm

Prereqs: Grade of C or better in MA 227, MA 260

Textbook: *Mathematics for Finance* by Capiński and Zastawniak

Assessment procedures:

- **Quizzes.** Five quizzes tentatively on 9/11, 9/30, 10/16, 11/4, 11/20 each counting 11 percent.
- **Final Exam** The final counts for 45 percent of the grade.
- **MA 592 students** will have extra problems/assignments as well as an additional portion on the Final Exam.

Topics

- **1** The notion of no arbitrage
- **2** Interest, compounding, bonds
- **3** Review of mean, variance, and covariance
- **4** Portfolio management: risk and return
- **5** Forwards and Futures
- **6** Put-call parity
- **7** Martingales and conditional expectation
- **8** The binomial model
- **9** Fundamental theorems of asset pricing
- **10** Brownian motion (heuristics)
- **11** Itô's formula and Girsanov's theorem (heuristics)
- **12** The Black-Scholes-Merton formula
- **13** Interest rates
- **14** The binomial model for stochastic interest rates