

Math 6635

Numerical Methods in Finance

Course Information (Spring 2027)

Time and Place: MW 12:30--13:45, Instruction 211

Reference books:

Wilmott, Howison, and Dewynne, *The Mathematics of Financial Derivatives, A Student Introduction*.

Wilmott, *Quantitative Finance, Volume 1*.

J. W. Thomas, *Introduction to Numerical Methods for Partial Differential Equations, Volume 1*.

Important
Websites:

Course

Information/

Assignments:

<https://canvas.gatech.edu/>

Instructor's Web
Page:

<https://yingjie.math.gatech.edu/>

Georgia Tech
Honor Code:

<http://www.honor.gatech.edu/>

Instructor: Prof. Yingjie Liu

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Office Hours: Mon 15:00-16:00, Wed 13:45-14:45

Homework: Homework will be assigned every two or three weeks and they must be turned in on time. (Late homework will be accepted, but the grade will be reduced by 20% from the original grade for each day the homework is late, until to a minimum of 50%).

Grading: Homework 70%, final exam 30%. Final letter grades will be calculated on a curved scale. Do note, though, that the letter grade cutoffs will certainly be no more stringent than the "traditional" cutoffs: 90-100 A, 80-90 B, 70-80 C, 60-70 D.

Prerequisites: Differential equations, probability and statistics, linear algebra, and knowledge of programming in some language are all needed in this course. It is especially important that you be able to write computer code, as you will be required to do so on most every homework assignment and the final exam. Registered students should know at least one programming language, e.g., Fortran, C, C++, Matlab, Python etc.

The learning objectives for Math 6635 are as follows: (1) Students will learn various models for determining how options are priced, such as Binomial and Black-Scholes. (2) Students will learn some basics of stochastic calculus, and methods for numerically simulating such. (3) Students will learn numerical methods for solutions to specific classes of PDEs, including those with free boundaries. (4) Students will learn other miscellaneous numerical/analytical methods that are applicable to the above.