**Hunter College**
**Fall 2017**
**Math 385-685: Numerical Methods 1 3 hrs, 3 cr.**
**MoWe 4:10PM - 5:25PM, Hunter North 1311**
**Lecturer: David Meretzky**
**Email: dm594@hunter.cuny.edu**

TEXT: Elements of Numerical Analysis with Mathematica By John Loustau
ISBN: 978-981-3224-15-5

Course Outline: Much of the first week will be spent learning to write code in Mathematica. Every student is given a license here at Hunter. Download instructions can be found at http://www.hunter.cuny.edu/it/it-services/mathematica. You must bring a laptop with Mathematica to class. We will cover the first six chapters of the course text emphasizing programming excercises and supporting theory. We will cover a variety of methods for solving equations numerically, namely, getting approximate solutions when closed form solutions cannot be found. Techniques for matrix inversion and decomposition will be covered as well as interpolation techniques, numerical differentiation, integration and their applications to differential equations. Time permitting we will discuss Methods of Last Resort.

Homework: Homework will be assigned once or twice a week. It will be graded. Homework is due at the begining of class. I will drop your two lowest homework scores. If you cannot make it to class, you may email me a pdf of your homework or a Mathematica .nb file for programming excercises. The email must be in my inbox by 4:10pm (for fairness). Programming excercises must be handed in on a flash drive. The drive must be clearly marked with your names, and homework files must be titled with the name of the assignment, date, and your last name. For example: NewtownSecant7.29Meretzky.

Exams: Exams may inlcude a take home portion. There will one midterm and one final exam. The date and time of the final exam is 12/20/2017 3:00 - 5:00pm.

Grades: Homework = {programming assignments, theoretical assignments}; 25%

Participation and Attendence 5%
Programming Exam 7% (2 weeks in)
Midterm 25% (8 weeks in)
Final Exam 38%

Office Hours: I am not assigned office hours. However, by email appointment, I will try to be available for questions either in the classroom or in Hunter East 924 for 30 minutes before class.

Credit/No Credit: Forms get handed in at the start of the final exam. Students must attend class, take exams etc. for Credit/No Credit.

Extra Credit: Numerical Methods is applied mathematics. If you successfully/interestingly apply the methods learned in this course to real world problems extra credit will be awarded to those who give a 5-minute presentation to the class. Email me your project description.