

Math 111-H01

COURSE INFORMATION AND POLICIES

Meeting Time: MW 10:30-11:45

Location: Online using Blackboard Collaborate Ultra Course Room. (linked on left menu)

Instructor: Ellen O'Brien

Office: Exploratory Hall 4205

Office Hours Online: T 11:00-12:00, W 3:00-4:00 and by request (just send me an email)

Email: eobrien@gmu.edu (Please include Math 111 in the subject line)

Text and Materials: Finite Mathematics and Its Applications, 12th Edition, by Goldstein,

Schneider and Siegel, Pearson 2018

Math 111 Data Fitting Notes – available left menu

Course Description: This course meets the quantitative reasoning requirement, one of the Foundation requirements of the Mason Core. The goal of the Foundation requirement is to help ensure that students are equipped with the tools and techniques necessary to succeed in college and throughout their lives and careers. We will cover the following topics:

- Linear Equations
- Linear Systems and Matrices
- Leontiff Input/Output Analysis
- Markov Processes
- Data Fitting - Polynomial Interpolation, Least Squares

Student Expectations

- Attendance- you are expected to attend every scheduled online class (Collaborate Ultra linked on left menu). There will be supplementary videos available, but **I do not record the lectures.**
- Take notes - it is a good practice to take notes when you are watching a video lecture in the same way that you would normally do in a face-to-face class. For online lectures, notes will be available and distributed in our One Note Class Notebook
- Preparation- you are expected to be prepared for class. The preparation includes doing homework problems, watching videos and reading the textbook.
- The course Blackboard will contain information about the course. You should check Blackboard regularly for announcements and materials.
- Meet deadlines for worksheets and Matlab assignments. I will post reminder announcements for these deadlines.

Exams:

- Test 1 - Monday February 22
- Test 2 - Monday March 22
- Test 3- Monday April 19

Final Exam: Wednesday May 5 10:30am-1:15pm

Test 1, Test 2 and Test 3 will be given during class, with time limited to 1 hour 15 minutes.

Grading: Your grade for the course will be calculated based on three semester exams, a final exam, Worksheets and four Matlab assignments. Matlab assignments will be worth 25 points each (total 100). Each test is worth 100 points, worksheets* worth a total 100 points and the final exam 100 points. The sum of these grades divided by 6 will determine your grade according to the scale:

A: 90-100 B: 80-~~89.9~~ C:70-~~79.9~~ D:65-~~69.9~~ F: below 65

+ or - may be attached to the grade for the upper or lower 2 points in each range

NO MAKE-UP TESTS will be given. If you miss an exam contact me ASAP. Worksheets may not be submitted after the deadline.

* Worksheets will be recorded in the gradebook on Blackboard with 5 points each. This will be adjusted at the end of the semester to total 100.

Homework: Homework practice problems will be assigned at the end of each class and reviewed at the beginning of the next class meeting. Reading the sections of the text related to the problems is a part of the homework assignment. I will post the assignment regularly on the course Blackboard.

Technology: Details of these are located on the left menu under *Tech Tools*

- *Matlab* to help with matrix calculations. This software is available for student use remotely on mason.gmu.edu. The system requires your PatriotPass. Details for connecting is available on Blackboard.
- *Class Notebook* from Office 365. The course notebook had been created. A link is provided on Tech Tools page.
- *Desmos* is a free software that we will use for graphing models and making scatter plots of Data Sets

Calculators: You will need a calculator for class work, homework, and exams. Any calculator that does arithmetic and exponential calculations is acceptable. Matrix computations on exams and worksheets are to be **done by hand**.

Honor Code : Sharing information of any kind about exams is an Honor Code violation. The assigned Matlab problems are NOT GROUP PROJECTS. Each student is to work independently and turn in their own Matlab calculations. Some kinds of participation in online study sites violate the Mason Honor code: these include accessing exam or quiz questions for this class; accessing exam, quiz, or assignment answers for this class; uploading of any of the instructor's materials or exams; and uploading any of your own answers or finished work. Always consult your syllabus and your professor before using these sites. Any violations will be referred to the Office of Academic Integrity.

Disability statement: If you are a student with a disability and you need academic accommodations, please see me and contact the Office of Disability Services at 703-993-2474. All academic accommodations must be arranged through that office.

General Remarks: I am here to help. If there is anything that you have trouble with just let me know. I can try to help over email or I can meet with you in the Collaborate room. I will structure and organize the course with weekly units on Blackboard to make it easier for you to follow. Be aware of deadlines. Keep on top of the class and try not to get behind.

Mason's Nondiscrimination Policy: George Mason University is committed to providing equal opportunity and an educational and work environment free from any discrimination on the basis of race, color, religion, national origin, sex, disability, veteran status, sexual orientation, or age. Mason shall adhere to all applicable state and federal equal opportunity/affirmative action statutes and regulations. Moreover, in this class we seek to create a learning environment that fosters respect for people across the entire range of human identities. We encourage all members of the learning environment to engage with the material personally, but to also be open to exploring and learning from experiences different than their own.

CLASS SCHEDULE

The following is a tentative schedule for the semester:

M	W
Jan. 25: Sec 1.1 Linear Models and Graphs	Jan. 27: Sec 1.2, Slope of a line; Writing Linear Equations
Feb. 1: Sec 1.3, 2.1 Intro to Matrix method of solving systems.	Feb. 3: Sec 2.1 Matrix Method of solving systems of Equations;

	Row Operations
Feb. 8 Sec 2.2 Gaussian Elimination	Feb. 10: Sec 2.3 Matrix Operations: Scalar and Matrix Multiplication, Addition
Feb. 15: Sec 2.4 Inverse of a Matrix	Feb. 17: Sec 2.4 Matrix Equations
Feb. 22: Test 1	Feb. 24: Introduction to Matlab
Mar. 1: Sec 2.5, 2.6 Gauss-Jordan Method of finding Inverses Leontiff Input-Output Analysis	Mar. 3: Sec 2.6 Leontiff Input-Output Analysis
Mar. 8: Sec 8.1 Markov Processes	Mar. 10: Sec. 8.2 Processes with Stable Distributions
Mar. 15: Sec 8.3 Absorbing States and Absorbing Matrices	Mar. 17: Sec 8.3 Absorbing Markov Processes
Mar. 22: Test 2	Mar. 24: Sec: 1.4 Least Squares Formulas
Mar. 29: Sec 1.4 Least Squares Error	Mar. 31: Data Fitting Introduction
Apr 5: Data Fitting Polynomial Interpolation	Apr 7: Data Fitting Least Squares
Apr 12: Data Fitting Least Squares vs. Polynomial Interpolation	Apr 14: Exponents Review
Apr 19: Test 3	Apr 21: Data Fitting Exponential model
Apr 26: Data Fitting PowerLaw Model	Apr 28: Course Review
May 3: no class	May 5: Final Exam 10:30-1:15

IMPORTANT DATES

- February 12 last day to drop classes with no tuition penalty
- March 2-April 1 Selective Withdrawal Period (you can use the selective withdrawal a maximum of 3 times as an undergraduate)
- April 30 Last day of classes.