Math 111, Section 3, Spring 2022

Linear Math Modeling
In-Person Instruction @ Loudoun Campus

Instructor: Deodato Obregon

E-mail Address: dobrego@gmu.edu

Class Hours: Wednesdays, 4:30pm to 7:10pm, Room 211 @Loudoun Campus
Office Hours: Saturdays 1 to 2 pm (zoom), Mondays 6 to 7 pm (zoom)
and in-person by appointment

Credit Hours: 3

Textbook: *Finite Mathematics and Its Applications, 12e, by Goldstein, Schneider, Siegel and Hair;* Pearson 2018 with MyLab Math.

MyLab Math access for Math 111 is required for each student.
The online textbook is included with your MyLab Math subscription.
Instructions regarding MyLab Math will be sent to you by e-mail.

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 and Graphs
Linear Systems and Matrices
Leontiff_Input/Output Analysis
Markov Processes
Data Fitting - Polynomial Interpolation, Least Squares

Disability Services: If you are a student with a disability and you need academic accommodations, you must inform me by e-mail and the Office of Disability Services (phone: 7039932474). All academic accommodations will be arranged through that office.

Diversity/Inclusion Statement: George Mason University welcomes and values individuals and their differences including race, economic status, gender expression and identity, sexual orientation, ethnicity, national origin, first language, religion, age, and ability status.

Main Course Policies:

- **Every student is expected to attend the scheduled class lectures.**
  Cellphones must be kept in silent mode and out of sight during class.
  Laptops/chromebooks can be used in class when permitted by the instructor.
- A PDF document for guided notes for each lecture will be posted on Blackboard.
  Use these guides to actively take notes during the lecture.
  Class worksheets (graded) will be provided to students during each class.
- All tests and exams must be taken inside our classroom during the given schedule.
  In general, **no make-up test or exam will be given** unless there is an extremely unusual event as determined and verified by the instructor. The instructor reserves the right to give a score of 0 for any missed test or exam.
- **All students are responsible for all communication, assignments, and assessments** in this course. They will adhere to the University Honor Code.

University Honor Code:

https://oai.gmu.edu/mason-honor-code/full-honor-code-document/

No collaboration is allowed on tests and exams. Any indication that you used a non-permitted device or resource, copied or allowed someone to copy your work and answers is a violation of the GMU Honor Code. The course assignments are designed for individual completion, not for group work. You are not allowed to share or post any notes, worksheets, assessments, or other resources from this course on websites like chegg.com. Any Honor Code violation will be reported to the Office of Academic Integrity.

Important Dates

Test 1 (Unit 1): February 9, 2022
Midterm Exam: March 9, 2022
Test 2 (Unit 3): April 13, 2022
Final Exam: May 11, 2022

Last Day to Drop (with no tuition penalty): February 7, 2022
Last Day to Drop (50% tuition refund): February 14, 2022
Unrestricted Withdrawal Period (no refund): Feb. 15 to Mar. 1, 2022

Grade Distribution:

Assignments (see below)	30%
Test 1 (Unit 1)	10%
Test 2 (Unit 3)	15%
Midterm Exam (Units 1 & 2)	20%
Final Exam (cumulative)	25%

The assignments include MyMathLab (MML) homework, Desmos and matrix calculator printed outputs, and graded classwork (written work). If students miss a class, they will get 0 out of 10 points allotted to the classwork. MyMathLab homework is graded for accuracy and 5 attempts are given to answer each MML homework item. There is a 20% late penalty for each homework submitted within 1 week after the deadline. After this time, homework will not be accepted.

Grading Scale

A+: 98 – 100; A: 93 – 97; A-: 90 - 92; B+: 87 – 89; B: 83 – 86; B-: 80 - 82; C+ : 77 – 79; C: 73 – 76; C-: 70 - 72; D: 60 - 69; F: 0 – 59.

Technology and Resources

- MyMathLab is an excellent tool for active learning. You get immediate feedback when you attempt the HW items. There are help tools in MML that will help you learn the material and practice for mastery.

- MyMathLab is not operated by GMU. For technical difficulties, go to https://support.pearson.com/getsupport/s/contactsupport.

- Desmos is a free online resource that we will use for graphing models and making scatter plots of data sets. It also has other features.

- Either Matlab or another matrix calculator is useful for matrix calculations. Matlab is available for student use remotely on mason.gmu.edu. The system requires your PatriotPass.

- Bring a laptop/chromebook to class for tests and exams. E-mail me soonest for any device-related issues.

- Any calculator that does arithmetic and exponential calculations is generally acceptable. Matrix computations on exams (in the no calculator section) and most classwork are to be done by hand.

Class Web Page / Communication

- I will post announcements, class materials, links and resources, and scores/grades on **Blackboard**. I will also send information via **GMU email**. E-mail is the primary way of reaching me: **dobrego@gmu.edu**. Please include your full name and Mason ID in your e-mails.

Math Help

- The instructor will work with you to help you achieve success and overcome difficulties in this course. You are encouraged to attend any of the office hours to clarify topics or to get help with some homework items after you have attempted the items and used MML help tools.

- You may also get math help from The Math Tutoring Center staff. All Math Help Information are posted in our corresponding Blackboard tab.

Final Note

- This 3-credit math course will require a substantial amount of your time and effort. Be persistent. Have a productive and enjoyable semester!

GEORGE MASON UNIVERSITY

Math 111, Section 3, Spring 2022

Linear Math Modeling
Instructor: **Deodato Obregon**

Course Outline (Schedule of Topics)

Week (Date)	Content / Topics	Sections
1 (1/26)	Linear Equations and Graphs	1.1, 1.2
2 (2/2)	Linear Systems and Least Squares Method	1.3, 1.4
3 (2/9)	**Test 1 (1.1 to 1.4)** Gauss Jordan Elimination Method 1	2.1
4 (2/16)	Gauss Jordan Elimination Method 2 Using a Matrix Calculator	2.2
5 (2/23)	Matrix Algebra Solving Systems using Inverses	2.3, 2.4
6 (3/2)	Finding Inverses using Gaussian Elimination Leontiff Input-Output Model	2.5, 2.6
7 (3/9)	Exam Review **Midterm Exam (Units 1 and 2)** ---------- ** Spring Break (3/14 to 3/20)	
8 (3/23)	Markov Processes	8.1
9 (3/30)	Regular Stochastic Matrices	8.2
10 (4/6)	Absorbing Stochastic Matrices 8.1 to 8.3 Practice	8.3
11 (4/13)	**Test 2 (8.1 to 8.3)** Data Fitting Day 1: Polynomial Interpolation	Sections 1 & 2 of Handouts
12 (4/20)	Data Fitting Day 2: Least Squares	Sections 3 & 4 of Handouts
13 (4/27)	Data Fitting Day 3: Exponential Model Cumulative Practice	Section 5 of Handouts
14 (5/4)	Data Fitting Day 4: Power Model, Summary Exam Review	Sections 6 & 7 of Handouts
15 (5/11)	**Final Exam is on 5/11/2022.**	