

Fall 2020

Instructor: C. M. Staniunas

Math 111 Mathematical Models for the Management Sciences

Note: Students who have received credit for Math 112 or higher may not take this course. Students must receive a C or better in Math 111 or INQ 240 to declare a major in Business Administration.

Office: 161 D Trexler Hall

Office hours: MWF 9:30am-11:30am (in person)

TW 6:30-7:30 via Zoom

Other times by appointment

Phone: 375-2010, e-mail: staniuna@roanoke.edu

Course Objective: to provide the background in the quantitative techniques necessary to better understand advanced courses in Business and Economics.

Learning Outcomes: Upon completing this course, the student will be able to:

Solve linear equations in one or more variables

Solve applied problems using linear equations

Solve systems of linear equations using graphing, substitution, elimination, or matrix methods

Solve quadratic functions and use them in applications

Solve systems of linear inequalities in two variables

Use graphical methods and the simplex method to solve linear programming problems

Find the derivatives of functions

Use derivatives in business applications

Text: Mathematical Applications for the Management, Life, and Social Sciences, tenth edition, by R. Harshbarger and J. Reynolds.

Calculator Requirement: All students will need a **graphing** calculator for this course, preferably a TI-83 or TI-84. We will also use Microsoft Excel.

Flipped Classroom You may be used to attending a lecture, working on homework problems, and then having a few (if any!) of your questions answered during the next class period before moving on to the next lecture. We will move the lecture part of this process to before class, reserving class time for your questions and working problems.

The lecture for each class period will be posted on our Inquire page, along with a few practice problems. In order to be prepared for class you must watch the lecture and work on the problems beforehand.

-come to class prepared

-bring your laptops, as we may use Zoom in ANY class.

Grading Policy:

Accuracy of graded problems (average) 10%

Classwork/participation(average) 10%

Tests (mastery grade) 80%

Grades will be assigned thus:

A 93-100	B- 80-82	D+ 67-69
A- 90-92	C+ 77-79	D 63-66
B+ 87-89	C 73-76	D- 60-62
B 83-86	C- 70-72	F under 60

Testing Policy : We will use mastery-based testing rather than points-based testing . You will only receive credit for answers that demonstrate that you completely understand (have mastered) a topic. BUT you will get many chances to prove mastery throughout the semester with no penalty for previous attempts.

-The course has been summarized into 16 topics

-Your mastery of questions on these topics is assessed through the working of problems on Mastery days

- Each problem is graded as “mastered” or “not mastered”
- Once you have mastered a topic, you need not attempt it again
- There is no penalty for multiple attempts to achieve mastery
- Mastery means you understand and can demonstrate all fundamentals of the topic and are proficient at the level desired for the course.
- Your overall test grade is determined by the number of topics you have mastered:

#mastered	Mastery grade	#mastered	Mastery grade
16	100	8	60
15	95	7	55
14	90	6	50
13	85	5	45
12	80	4	40
11	75	3	35
10	70	2	30
9	65	1	25

You are expected to spend 12 hours per week working for this class (3 hours in class, 9+ hours outside of class).

You may gain extra credit by attending one of the MCSP colloquia and completing a response form about what you learned. I will provide a schedule as soon as possible.

Academic Integrity: You are expected to be familiar with the Academic Integrity Code outlined in the booklet Academic Integrity at Roanoke College. In this class, you shall not cheat on tests or collaborate on quizzes or graded problems.

Attendance Policies: Students are expected to attend EVERY class and are accountable for any missed classes. If you miss more than three classes, you may be dropped from the course for excessive absence. HOWEVER:

If you have a temperature of 100.4 or higher, or other coronavirus symptoms, CALL HEALTH SERVICES IMMEDIATELY. In order for your absence to be excused, you must give Health Services permission to notify me that you have consulted them about your symptoms. If they inform you that you should isolate or not attend class for multiple days (or weeks), tell me. THEN:

If you are well enough to attend the class Zoom meetings, do so. You will be considered “present” for those classes.

If you are NOT well enough to attend the class Zoom meetings, look at the recordings on our Inquire page when you recover.

All other situations: You are expected to be in the classroom when that is possible. You are expected to attend class via Zoom when it is impossible (for health reasons) for you to be physically present in class. Keep your microphone muted unless you are speaking and your video ON.

Special classroom policies for Fall 2020

- Face coverings/masks must be worn over the mouth and nose by all students and instructors in classrooms and hallways of academic buildings. By wearing face coverings, we protect our college community and its most vulnerable members. Students who come to class without a face mask that is being worn properly will be asked to leave and will be readmitted only after they are wearing one.
- During the times when the college is forced to suspend in-person attendance, this class will continue to meet via Zoom at our regular time. You will need internet connectivity. If you have technology challenges, I need you to email me as soon as possible so that we can discuss how you can keep up. I will continue to have office hours at my regular times via Zoom.
- Corridors may be crowded, especially before class. Please wait outside the building (weather permitting) until 5 minutes before your class begins.

Accessible Education Services (AES) is located in the Goode-Pasfield Center for Learning and Teaching in **Fintel Library**. AES provides reasonable accommodations to students with documented disabilities. To register for services, students must self-identify to AES, complete the registration process, and provide current documentation of a disability along with recommendations from the qualified specialist. Please contact Laura Leonard, Assistant Director of Academic Services for Accessible Education, at 540-375-2247 or by e-mail at aes@roanoke.edu to schedule an appointment. If you have registered with AES in the past and would like to receive academic accommodations for this semester, please contact Laura Leonard at your earliest convenience to schedule an appointment.

Subject Tutoring, located on the lower level of Fintel Library (Room 5), is open 4 pm – 9 pm, Sunday – Thursday. We are a Level II Internationally Certified Training Center through the College Reading and Learning Association (CRLA). Subject Tutors are friendly, highly-trained Roanoke College students who offer free, one-on-one tutorials in a variety of general education and major courses such as: Business, Economics, Mathematics, INQ 240, Modern Languages, Lab Sciences, INQ 250, and Social Sciences (see all available subjects at www.roanoke.edu/tutoring). Tutoring sessions are available in-person or online in 30 or 60-minute appointments (please specify if you prefer to meet with a tutor online or in-person when you make your appointment). All in-person appointments will maintain at least 6 feet of physical distance, desks will be cleaned between appointments, and masks must be worn in all indoor, public spaces. In the event that all classes go online this semester, Subject Tutoring will remain available online, too. Schedule an appointment at www.roanoke.edu/tutoring or contact us at 540-375-2590 or subject_tutoring@roanoke.edu.

Please have Subject Tutoring notify me when you attend a session. These count as class participation.

Courtesy: We will treat each other with respect at all times. If I offend you, it is unintentional, but call me on it anyway so that I can avoid doing it in the future.

I will honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. Please address me as Mrs. Staniunas or Mrs. S.

Tentative schedule Fall 2020

Date	topic/section	Classwork	Watch for next class	Practice for next class	Submit
8-19	Introduction		Videos 7.5 intro Video 7.5	pp470-471/ 1,3,15,17,27,41	
8-21	T1 7.5	WS 7.5	Videos 1.1 Review fractions	p62/ 9,13,19,25,31	
8-24	T2 1.1	WS 1.1	Video 1.2	p73-74/ 3,7,15,17,19ab,25	
8-26	T3 1.2	WS 1.2	Video 1.3	pp85-87/ 13,23,27,29,35	GP7511
8-28	T4 1.3	WS 1.3	Video 1.5a	p104/ 11,15,17,23,29	
8-31	T5 1.5	WS 1.5	Video 1.5b	p105/39,44,49 set up the systems	GP1213
9-2	T5 1.5	WS 1.5	Video 1.6	pp112-115/5,9,13,19,21,23,43	
9-4	T6 1.6	WS 1.6	Video 3.1	p194/11,15,17,19	
9-7	T10 3.1	WS 3.1	Study for mastery		GP1516
9-9	mastery	Topics 1-6, choose 4	Video 3.2	pp206-207/ 1,3,5,11,13	
9-11	T10 3.2	WS 3.2	Video 3.4	pp234-235/29,31,33	
9-14	T11 3.4	WS 3.4	Video 3.3 row ops	Row operations	GP3132
9-16	T11 3.3	WS 3.3 row operations	Video 3.3	pp 219-221/ 1,3,5,17,19	
9-18	3.3	WS 3.3	Video 4.1	pp265-267/1,3,7,9,13,19,29 setup	
9-21	T12 4.1	WS 4.1	Study for mastery		GP3334
9-23	mastery	Topics 1-6, 10-11 choose 4	Video 4.2	pp275-279/ 3,5,7,9,15, 25 setup	
9-25	T12 4.2	WS 4.2			
9-28	T12 4.2	More 4.2	Video 4.3a	Excel sheet intro	
9-30	T13 4.3	WS 4.3	Video 4.3b	pp294-295/29,31 with Excel Set up 48,49,51	GP4142
10-2	T13 4.3	WS 4.3	Video factoring	Factoring practice p134/ 5,7,9,11	
10-5	T7	WS factoring	Study for mastery		
10-7	mastery	Topics 1-6, 10-13 choose 4	Video 2.1	p134/13,21,23,25,29,35,41,47	
10-9	T7 2.1	WS 2.1	Video 2.2	p143-145/ 3,5,9,31,35	
10-12	T8 2.2	WS 2.2	Video 2.3	pp151-153/ 5,7,9,11,15,25	
10-14	T8 2.3	WS 2.3	Video 2.4	pp162-165/ 3,5,7,8,9,10,13,15, 19,21,23,34,37,38,40	
10-16	T9 2.4	WS 2.4			GP2123
10-19		exponents	Study for mastery		
10-21	mastery	Topics 1-13, choose 4	Video 9.1 Video 9.2	pp553-554/ 1,5,7,17,27,33 p564/ 2,4,11	
10-23	T14 9.1 9.2	WS 9192	Video 9.3,9.4	pp577-578/2,12; pp588-589/3,7,15,21,25,27,47	
10-26	T14 9.3,9.4	WS9394	Video 9.5	pp596-597/ 3,7,9,11,13,17,21,39	
10-28	T15 9.5	WS 9.5	Video 9.6	p603-604/ 5,7,11,15,17,25,27,41	GP9194
10-30	T15 9.6	WS 9.6			
11-2		Derivative review day	Study for mastery		GP9596
11-4	mastery	Topics 1-15, choose 4	Video 9.7	pp610-611/ 13,15,17,37	
11-6	T16 9.7	WS 9.7	Video 9.8,9.9	p615-616/ 3,11,17 p624-626/3,13,17,27	
11-9	T16 9.8,9.9	WS 9899	Video 10.1	p647-649/ 1,3,5,7,17,25	
11-11	T16 10.1	WS 10.1	Video 10.2	pp660-662/ 13,17,19	

11-13	T16 10.2	WS 10.2	study for mastery		GP10.1 10.2
11-16	mastery	Topics 1-16, choose 4			
11-24		Final Mastery 8am-noon			