

# MATH 111 Mathematical Models for the Management Sciences

## Fall 2022

**Instructor:** Roger Reakes  
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**Office Hours:** Tuesday 11:00 am to 1:00 pm ; Thursday 10 am - Noon  
All office hours are by appointment. To make an appointment, please use the link:  
<https://rreakes24.youcanbook.me>  
*If these hours do not work with your schedule, please call or email me to set up a Zoom Meeting appointment.* I will do my very best to accommodate both of our schedules.

**Text:** *Mathematical Applications for the Management, Life, and Social Sciences, (11th edition)*,  
by Ronald Harshbarger and James J. Reynolds.  
[Online Bookstore Link](#)

**Recommended Technology:** A laptop for class is not required, but very helpful! A phone can be used in its place.

**Note:** This course may not be taken for credit if credit has been received for Mathematics 112 or higher. If you have questions concerning this, please contact your advisor immediately. Also, you need to earn a C or better in this course or in INQ 240 to declare a major in Business Administration. Once again, please contact your advisor if you have questions regarding the necessary grades/courses.

**Mask Policy:** The college is starting the term without a specific mask mandate. Some offices on campus may require that masks be worn (such as Health Services). I will NOT be requiring masks in my classes at this time.

**Pandemic Planning:** If college policies change due to the pandemic, I will distribute an updated syllabus. I will email you our new plan and post details on Inquire. You should email me with any questions or challenges that arise.

**Academic Integrity:** You are expected to be familiar with the Academic Integrity Code outlined in the booklet, [Academic Integrity at Roanoke College](#),  
[https://www.roanoke.edu/inside/a-z\\_index/academic\\_affairs/academic\\_integrity](https://www.roanoke.edu/inside/a-z_index/academic_affairs/academic_integrity).

You are expected to do all work graded for accuracy independently. This includes tests, quizzes, and graded practice problems. You are allowed to work alone, with a partner or a group on the daily independent practice problems which will only be checked for completion.

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

**Course Outcomes:** Upon completing this course, the student should be able to:

- 1) solve linear equations (and applications) in one or more variables.
- 2) solve systems of linear equations (and applications) by utilizing graphing, elimination, and matrix row-reduction techniques.
- 3) solve quadratic functions and to utilize these functions in applications.
- 4) utilize both graphical methods and Excel Solver to find the optimal value of a linear function, subject to constraints.
- 5) Select the best fit line or curve function for a data set and find the regression equation.
- 6) find the derivative of a function, interpret the derivative, and use the derivative for business applications.

**Policy on expected number of hours of work per week:** Per the Academic Catalog, "For each one-unit course,

students are expected to complete 12 hours of work inside and outside of class each week.” Realistically, this may vary due to the strength of the background of each individual student with respect to course content.

**Grading:**

Completion of Watching Videos	5%
Open Notes Quizzes	5%
Completion of Independent Practice Problems:	10%
Accuracy of Graded Practice Problems	10%
Mastery Test Grade:	70%

Grades will be assigned using the scale below:

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

**Testing Policy:** We will use Mastery-Based Testing rather than Points-Based Testing. Mastery-based testing is

very different from what you are used to - do not hesitate to ask me questions!  
 You will only receive credit for answers that demonstrate you completely understand (have mastered) a topic. But you will get MANY chances to display mastery throughout the semester with NO PENALTY for earlier attempts.

- The course has been summarized by 16 topics.
- Your mastery of questions on these topics is assessed through the working of problems in mastery opportunity classes and during the final exam period.
- Each problem submitted is graded as either “Mastered” or “Not Mastered”. A grade of Mastery indicates that you have demonstrated a full understanding of the concept being tested and further work on the topic is unnecessary.
- Once you have mastered a topic, you need not attempt it again.
- There is no penalty for multiple attempts taken to achieve mastery.
- Mastery does not mean perfect! It means you understand and can demonstrate all fundamentals of the topic and are proficient at the level desired for the course you do not need to study the topic further.
- Your overall test grade is determined by the number of topics you have mastered illustrated in the table below:

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

**Late Work Policy:**

Video completion will be checked prior to class to ensure you have watched the video at least once! You may not get credit for watching the video after class has begun without written documentation from a college official.

Independent practice problems are uploaded to the Inquire Assignment link. This work will only be accepted by the end of class the day it is due. No late submissions will be accepted without arrangements approved prior to absence OR without written documentation from a college official. If you miss class for any reason you should submit the assignment to me the day it is due!

Accuracy Quizzes will be administered every day that graded practice is due. A student can make up the quiz if it was missed due to an excused absence. An absence is excused by notifying prior to class that you will be absent.

**Attendance:**

Class attendance is a very important aspect of a student's success in this course. The student is expected to attend every class and is accountable for any missed classes.

**Subject Tutoring:** Subject Tutoring is a CRLA Nationally Certified Program located on the lower level of Fintel Library in room 005. Subject Tutoring offers individual appointments in 30-minute intervals for Lab Sciences, Modern Languages, Math and CPSC, Social Sciences, Business and Economics. Hours are Sunday - Thursday 4 p.m. - 9 p.m. For a list of tutorials or to make an appointment, go to [www.roanoke.edu/tutoring](http://www.roanoke.edu/tutoring).

**Co-Curricular Engagement:** The MCSP Department offers a series of talks (MCSP Conversation Series) that appeal to a broad range of interests related to your fields of study. You are invited to be involved with all these meetings. After attending, submit a one-page paper reflecting on the discussion through Inquire. These reflection papers earn **extra credit**, with .5% added to your course average for each attended, up to 1% total. In addition, individually you may request that other appropriate events can count. [Link to schedule.](#)

**Tentative Schedule and Assignments:**

Use the following link:

[Course Schedule](#)

Topics:

Use the following link:

[Course Topics](#)