



FORDHAM UNIVERSITY

THE JESUIT UNIVERSITY OF NEW YORK

Math for Business: Finite, Fall 2023

Math 1108-R05, CRN 48053

Tue & Fri 11:30 am – 12:45 pm, Room TBD



This course introduces fundamental mathematical concepts and techniques arising in business. Topics include linear programming, mathematics of finance, counting techniques, as well as basic concepts of probability and statistics such as conditional probability, Bayes' formula, and binomial and normal distributions. Upon successful completion of this course, students should be able to formulate mathematical models of a range of real-world problems and solve them using some of the above mentioned tools.

3 hours/week, 3 credits.

Contact Information

Instructor: John Adamski, PhD
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Office Phone: 718-817-0427
Office Hours Mon & Thu 1-2 pm
Tue and Fri 10-11 am

Communication

All lecture notes, written homework assignments, solutions, course documents, and an up-to-date class schedule can be found at the website below. Please bookmark it and check it regularly for updates.

<https://johnadamski.com/fall2023/1108.html>

Textbook

We will closely follow the textbook *Finite Mathematics for Business, Economics, Life Sciences, and Social Sciences*, 14th Edition, by Barnett, Ziegler, Byleen, and Stocker. You are NOT required to purchase a physical copy of the textbook. However, you MUST purchase online access to the eText and the MyLab Math homework assignments. To do so, please follow the directions below.

1. Login to Fordham.edu and open Blackboard.
2. Open the Blackboard page for this course and click “Textbook & Homework” on the Course Content page.
3. Click any one of the four links with titles like “MyLab and Mastering...”.
4. If prompted, click “Launch”, “Open Pearson”, and/or “Open MyLab & Mastering”.
5. If prompted, select an access option:
 - (a) Enter a prepaid access code that came with your textbook or from the bookstore.
 - (b) Buy access using a credit card or PayPal account.
 - (c) If available, get temporary access without payment for 14 days.
6. Select “Go to my course”.

Here is some good advice: Read the textbook. Of course, this is easier said than done. Math textbooks are not read like novels. You will need to pause to think about what you are reading, check that you know the definitions of the words being used, slow down when reading solutions to example problems, and reread entire paragraphs often. The ability to read and learn from a math textbook is a skill that will be helpful in all of your future math courses, so start practicing now.

My suggestion to you is that before you work on any assigned homework, you first read the corresponding section(s) of the textbook. This will reinforce your understanding of the material from class and will likely make completing the homework much easier and quicker.

Course Content

- Chapter 5: Linear Programming
Linear equations and inequalities, linear programming without the use of matrices
- Chapter 3: Mathematics of Finance
Simple interest, compound interest, effective rate, annuity, amortization, applications
- Chapters 7 & 8: Set theory and Probability
Sets, set theory, permutations, combinations, equally likely events, compound events, complement rule, inclusion-exclusion principle, conditional probability, Bayes’s formula, independence

- Chapter 10: Statistics
Frequency distribution, measures of central tendency, measures of dispersion, Bernoulli trial, binomial distribution, density curve, normal distribution, central limit theorem

Homework

There are two types of homework for this course: online homework and written homework.

Online homework will be due weekly and completed through MyLab Math. You will receive instant feedback on whether your answers are correct or not, and you will have multiple attempts at answering each question before it is marked wrong. You are encouraged to ask questions in class and during office hours about any question(s) you find confusing.

Written Homework will be distributed in class approximately every two weeks. You will have one week to work on the problems and then I will collect your hand-written solutions in class. It is required that you justify your answers to written homework problems by showing your work. Mathematics is not only about solving problems, but also about being able to explain how the solution was found and why it is correct. Written homework will be graded and returned to you with comments within approximately one week. Late homework and homework submitted via email will not be accepted unless you arrange with me ahead of time for an exception to be made. Homework can always be submitted early to my mailbox in JMH 407.

Exams

There are two in-class midterm exams and a cumulative final exam. The tentative dates of these exams are listed below along with links to sample exams and solutions.

Midterm Exam 1	T 10/3	Sample Midterm Exam 1	Solutions
Midterm Exam 2	T 11/14	Sample Midterm Exam 2	Solutions
Final Exam	F 12/15, 1:30-3:30 pm	Sample Final Exam	Solutions

Make-up exams will only be permitted for excused absences. In order to qualify for a make-up exam, the student must contact the instructor within 24 hours of the absence by email and submit an Excused Absence form through the portal on Fordham.edu by selecting “My Pages” and going to the “Electronic Forms” section. Textbooks and notes are not permitted. The financial math formulas below will be provided for Midterm Exam 1 and the Final Exam. No other formulas will be provided.

Financial Math Formulas	
$I = Prt, \quad A = (1 + i)^n P$	
$FV = PMT \cdot \frac{(1 + i)^n - 1}{i}, \quad PV = PMT \cdot \frac{1 - (1 + i)^{-n}}{i}$	

Calculators

Calculators or other electronic devices are permitted and sometimes necessary for homework problems. You are allowed to use a [TI 30X IIS](#) scientific calculator on exams. *No other calculators will be permitted on exams.* Cell phones, tablets, and computers will not be permitted on exams.

Grades

Online homework grades will be visible through MyLab Math. All other grades will be posted to Blackboard throughout the semester. Exams will be taken in-person with paper and pencil. At the end of the course, your final grade will be calculated as follows.

- 15% Online Homework Average, H
- 15% Written Homework Average, W
- 20% Midterm Exam 1, M_1
- 20% Midterm Exam 2, M_2
- 30% Final Exam, F

$$\text{Course Grade} = .15H + .15W + .2M_1 + .2M_2 + .3F$$

Course grades will be converted to letter grades according to [Fordham's grading policies](#).

Course Grade	Letter Grade	Quality Description	GPA
$[92.5, \infty)$	A	Excellent; honors-level work, outstanding	4.00
$[89.5, 92.5)$	A-	Still excellent	3.67
$[86.5, 89.5)$	B+	Very good; high level of performance	3.33
$[82.5, 86.5)$	B	Good; solid and above average level	3.00
$[79.5, 82.5)$	B-	Good; still above average	2.67
$[76.5, 79.5)$	C+	Average level of performance	2.33
$[72.5, 76.5)$	C	Satisfactory; acceptable level of performance	2.00
$[69.5, 72.5)$	C-	Minimally acceptable	1.67
$[59.5, 69.5)$	D	Passing, but unsatisfactory; below average performance	1.00
$(-\infty, 59.5)$	F	Failure; inferior performance	0.00

Time Commitment

It is recommended that you dedicate between 2 and 3 hours each week outside of the classroom per credit for which you are registered. Since our class is a three-credit course, you should be spending between 6 and 9 hours per week preparing and reviewing for this course. These numbers are averages, of course. Some weeks you may spend less time, while other weeks you may spend more time.

Attendance

I want to help you all succeed in this course. I want you all to help each other succeed in this course. We can't do that if we don't all come to class and participate. So please attend every class. It is both the simplest and most important thing you can do to ensure your successful completion of this course. I will keep attendance records and follow [the university's attendance policy](#) that students may be dropped from the course after more than 4 absences.

Resources

- You can come to my office hours without making an appointment. Just stop by with your questions. Think of this as free tutoring provided by your professor! You can also make an appointment with me by email to meet at another time, in-person or over Zoom.
- The Math Department operates a Math Help Room at each campus. They are free, and you do not need an appointment. Just drop in anytime they are staffed. The Rose Hill location is JMH 410, and the Lincoln Center location is Lowenstein 810/812. Here is a link to the [Math Help Room schedules](#). Note that even when there are no faculty members around, the Math Help Room remains open for students looking for a good space to study.
- Students looking for additional assistance outside of the classroom are encouraged to consider working with a peer tutor through Knack. Tutors are paid by Fordham – students do not pay. To view available tutors and get started, visit fordham.joinknack.com.
- MyLab Math has lots of resources for students!
 - Click “Multimedia Library” to find video lessons, PowerPoint notes, animations, learning activities, and more all organized by chapter and section.
 - Click “Study Plan”, then “All Chapters”, and then select the chapter(s), section(s), and/or topic(s) that you want to study and MyLab Math will generate a practice quiz for you based on your selections. This may be particularly helpful when studying for midterm and final exams. Note that your score on these practice quizzes does not count toward your course grade.

- Click “Tools for Success” to find worksheets, formula sheets, and answers to common questions about using MyLab Math. Click “Skills for Success” for lots of general and practical advice about how to approach learning and studying math (or anything else!).
- Here is a library of [slides and video lectures](#) created specifically for this course by Professor David Swinarski. The videos are hosted in Fordham’s Panopto space. You may be required to sign in with your Fordham ID to view them.

Academic Integrity

From the university’s website:

A university, by its nature, strives to foster and recognize originality of thought, which can be recognized only when people produce work that is theirs alone, properly acknowledging information and ideas that are obtained from the work of others. It is therefore important that students must maintain the highest standards with regard to honesty, effort, and performance.

As a Jesuit, Catholic university, Fordham is committed to ensuring that all members of the academic community strive not only for excellence in scholarship but also for integrity of character. In the pursuit of knowledge and personal development, it is imperative that students present their own ideas and insights for evaluation, critique, and eventual reformulation. As part of this process, each student must acknowledge the intellectual contributions of others.

By being enrolled at Fordham University, students are bound to comply with the [University Code of Conduct](#), which includes, but is not limited to the [Standards of Academic Integrity](#). All portions of the [Undergraduate Academic Integrity Policy](#) will apply to this class. Your work on every evaluation must be your own. Cheating on a homework assignment or quiz will result in a grade of zero on that homework assignment or quiz. Cheating on an exam will result in an F in the course.

Disabilities

Under the Americans with Disabilities Act, all members of the campus community are entitled to equal access to the programs and activities of Fordham University. If you have (or think that you might have) a disability that may impact your participation in the activities, coursework, or assessment of this course, you may be entitled to accommodations through the Office of Disability Services. You can contact them at disabilityservices@fordham.edu, 718-817-0655, or by visiting the lower level of O’Hare Hall (Rose Hill campus) or Lowenstein 408 (Lincoln Center campus).

Whether or not you have documentation for accommodations, your success in this class is important to me. If there are aspects of this course that are not accessible to you, please let

me know as soon as possible so that we can work together to develop strategies to meet both your needs and the requirements of the course.

Important Dates

Wed 8/30	First day of classes
Mon 9/4	Labor Day, no classes
Wed 9/6	Classes follow a Monday schedule
Mon 10/9	Columbus Day, no classes
Wed 11/22 – Sun 11/26	Thanksgiving Recess, no classes
Fri 12/8	Last day of classes

Schedule

The following is a general plan for the course. We may deviate from this schedule, but all such deviations will be announced in class.

Class	Date	Lesson
1	F 09-01	5.1: Linear inequalities in two variables
2	T 09-05	5.2: Systems of linear inequalities in two variables
3	F 09-08	5.3: Linear programming in two dimensions
4	T 09-12	3.1: Simple interest
5	F 09-15	3.2: Compound interest
6	T 09-19	3.3: Future value of an annuity
7	F 09-22	3.4: Present value of an annuity; amortization, I
8	T 09-26	3.4: Present value of an annuity; amortization, II
9	F 09-29	Review
10	T 10-03	Exam 1 (5.1-3, 3.1-4)
11	F 10-06	7.2 Sets
12	T 10-10	7.3 Basic counting principles
13	F 10-13	7.4 Permutations and combinations, I
14	T 10-17	7.4 Permutations and combinations, II
15	F 10-20	8.1: Sample spaces, events, and probability
16	T 10-24	8.2: Union, intersection, and complement of events; Odds
17	F 10-27	8.3: Conditional probability, intersection, and independence, I
18	T 10-31	8.3: Conditional probability, intersection, and independence, II
19	F 11-03	8.4: Bayes's Formula
20	T 11-07	8.5: Random variables, probability distributions, and expected value
21	F 11-10	Review
22	T 11-14	Exam 2 (7.2-4, 8.1-5)
23	F 11-17	10.2 and 10.3: Measures of central tendency and measures of dispersion
24	T 11-21	10.4: Bernoulli trials and binomial distributions
25	T 11-28	10.5: Normal distributions, I
26	F 12-01	10.5: Normal distributions, II
27	T 12-05	Review
28	F 12-08	Review
**	F 12-15	Final Exam 1:30–3:30 pm (all sections listed above)

Note that all classes follow [this final exam schedule](#).