

# Math 120

## Survey of College Math

### Distance Learning Course

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**Office hours:**

**Course Website:** [www.mathxl.com](http://www.mathxl.com)

**Text:** *Finite Mathematics: For Business, Economics, Life Sciences, and Social Sciences*, by Barnett, et al., 13<sup>th</sup> ed.

**(NOT REQUIRED – Only buy if you want a hard copy)**

**Required Software:** MathXL (see below) – will give access to an electronic version of the textbook.

**Calculator:** A calculator is allowed on all work, including exams. A graphing calculator is required for this course (anything at the level of a TI-82 or greater is sufficient). If you have concerns about the appropriateness of your calculator, contact me.

**Course Content and Objectives:** This is designed to be a terminal math course, intended for those students looking to fulfill a math requirement for graduation. It is not intended for students majoring in business, economics, the physical sciences, engineering, or mathematics.

We will discuss lines, linear systems, linear programming, mathematical finance, some set theory, some elementary combinatorics (counting methods), probability, and matrix theory. We will also look at applications of all of these topics.

**Prerequisite:** C or better in Math Foundation course (Math 050 or Math 092, or equivalent), with an A or B highly recommended,

<b>Grading:</b> Homework – 25%	[90, $\infty$ )	A
Three Exams – 25 % each	[80,90)	B
	[70,80)	C
	[60,70)	D
	[0,60)	F

**Dropping/Incompletes:** Not doing any work is not a sufficient way of dropping this course. If you wish to drop this course at any time during the semester prior to the drop date, you must fill out the appropriate paperwork with the registrar's office. I will not drop you under any circumstance.

Incompletes will be given only in extraordinary circumstances (I will determine what is and is not extraordinary). If you are failing at the time you request an incomplete, I can not grant your request for any reason.

**Getting Started in the Course:** The entire course is run out of [www.mathxl.com](http://www.mathxl.com). Go to the above site, then choose "Register", and "Student". You will immediately need the course id – it is **XL37-S1AK-1020-7NK2**. You will then be asked to continue registering – if at some point you are asked for a campus zip code, use 20876, which corresponds to the Germantown campus. You will be asked to enter an email address as well – make sure you choose an address that you check regularly, since whenever I send emails to the entire class, this will be the address to which these emails are sent.

The course uses software called MathXL – you will need an access code to complete the registration process and enroll in the course. The code can either be purchased online during the registration process with a credit card, or you can purchase a code in the Montgomery College bookstore.

If there are any problems during the registration process, let me know. Once you have registered, you will have access to the actual course website. The first thing to do is to run the Browser Check (it's the first thing you will see on the homepage, below the heading "Welcome to MathXL") – then you can look at How to Enter Answers right below the Browser Check.

**Homework Assignments:** Once you've run the browser check and know a little about entering answers, go to the "Homework" tab on the left-hand side of the homepage. Hit the "Show All" button along the top of the screen to show both homework and practice exams. There are 21 homework assignments – each homework assignment is associated with one particular section of the textbook, and each of these textbook sections has associated videos and lecture.

Within each homework question, there are several "learning aids" along the right-hand side of the screen – these include "help me solve this", "view an example", "video", "textbook", and "ask my instructor". Please note that not every homework question has every one of these attached to it (but every homework question has at least "textbook" and "ask my instructor" associated with it).

The “video” and “view an example” are two of the most helpful aids – “view an example” will walk you through a problem similar to the one you are doing, and “video” will link to a video of someone going through a problem similar to the one you are doing. “Textbook” will link you to the relevant pages in the textbook that cover the topic that a particular question is asking about.

“Help me solve this” can be very helpful, but it has to be used carefully – it will walk you through the problem you are doing, but you should only try this after you have made a serious attempt at the problem yourself (maybe using the “view an example” aid). Also, if you are stuck at a certain part of the problem, only go through the problem up to the part you are stuck at – then try the rest yourself. You don’t want to become overly reliant on this aid, since you eventually have to do these problems yourself on the exam, without any help!

If you get stuck, you can always send me an email as well, using the “Ask My Instructor” aid – try to be as specific as possible in your question, so that my response can best help you. I will reply as soon as possible; if you haven’t heard back from me after 24 hours, send your message again, as it is possible I haven’t received it.

For every homework question, you have unlimited attempts; if you get a question wrong three times, you can click on the “similar exercise” button at the bottom of the screen and get a new question, but you can use this feature as many times as you would like. Therefore, there is no reason why every student should not end the course with a 100% homework grade!

Feel free to work together with other students on a homework assignment, and certainly feel free to ask questions of me and/or any other helpful individual (e.g. tutors, parents, friends); **HOWEVER**, it is a **SERIOUS** academic integrity violation to have any other individual complete part or all of a homework assignment for you. If I find out that this is going on, all students involved will receive an F in the course, and will be referred to the Student Conduct Council for academic dishonesty.

HOMEWORKS 1 – 7: Due Monday 02/25 by 5pm

HOMEWORKS 8 – 15: Due Monday 04/08 by 5pm

HOMEWORKS 16 – 21: Due Monday 05/06 by 5pm

**Lecture Videos:** In addition to the learning aids embedded in the assignments, there are two different sets of video lectures provided for each assignment. The first set is provided by the publishers of the textbook, and consists mostly of worked examples similar to those you would find in the textbook.

The second set was created by Prof. Bill Witte of the Montgomery College math department. These are not specifically tied to this textbook, though they do cover most of the same topics we will cover in this course, and they are conducted in more of a traditional lecture style. Some of Prof. Witte's videos contain information pertinent to more than one assignment, and sometimes the information on more than one assignment is covered in one video – the labels I have created should help. Additionally, sometimes Prof. Witte's videos contain information that are not covered in the homework assignments (for example, odds, and logarithms) – in these cases, this material **WILL NOT** be on the exams!

If any of the links to Prof. Witte's videos are broken, or you otherwise experience difficulty using them, please let me know.

**Exams:** There are three exams in this course, and you will have an hour to complete each one. You may use a calculator on any exam, but no notes and no textbook – scrap paper will be provided for you. The following schedule applies to the exams:

Exam 1	Opens: Mon, 02/11	Closes: Mon, 02/25
Exam 2	Opens: Mon, 03/25	Closes: Mon, 04/08
Exam 3	Opens: Mon, 04/22	Closes: Mon, 05/06

Before taking any exam, you should always go through the practice problems for the exam at least once – it will serve as good review for the actual exam. These practice problems (and their solutions) are in the “course documents” folder. Bear in mind, there are more practice problems than there will be actual exam problems, so not every practice problem will turn up on the exam. Do your best to complete as many practice problems as you can before you look at the solutions – try and use solutions sparingly, since you will need to complete problems just like these on the exam.

Exams are pencil and paper, so please make sure you show some kind of work for every problem, whether it be a drawing, a formula/calculation, and/or written justification. It doesn't need to be a lot of work in most cases, just enough for me to see how you got the answer; answers with no work will receive minimal credit (but incorrect answers with correct work will receive partial credit). My solutions to practice problems will often give an idea of how much work to show.

In the tab labeled “course documents”, you will also find some other useful information about the exams. I will give you some formulas on exam 2; those are available in a document called “Exam 2 formulas”. Please note that these formulas **WILL** be given **ON** the actual exam; there is no reason for you to print out the formula sheet. Additionally, on exam 3 there are several different types of counting problems; I have made a review sheet of sorts to help you keep track of them, called “Permutations and Combinations”.

As far as where you take exams, you can take exam 1 and exam 2 at the assessment center of any Montgomery College campus during their normal business hours. **HOWEVER**, the default testing center is Germantown, so if you would like to take your first two exams at Rockville or Takoma Park, you must email me and tell me **no later than Mon, 02/04**. If you don’t tell me by then, I can’t guarantee you will be able to take your exams at your desired location – you may have to take them at Germantown. Please be aware as well that taking exams at Rockville or Takoma Park may lead to a significant delay in grading these exams.

**IMPORTANT NOTE:** Since the end of the semester is a very hectic time, **everyone will take their exam 3 at Germantown**, regardless of where they take exam 1 and exam 2.

You are responsible for coordinating with the assessment center when you will take the exams; the phone numbers for the various assessment centers can be found on the web. Some assessment centers require an appointment to take an exam; make sure you call first before going in.

**BE AWARE:** It is a **SERIOUS** academic integrity violation to discuss the content of an exam with any student who has not yet taken that exam. Any student who is giving out information about an exam or any student who is receiving information about an exam they have not yet taken will receive an F in the course, and will be referred to the Student Conduct Council for academic dishonesty.

**Academic Integrity:** Relevant homework policies are listed above. There is no cheating of any kind permitted on exams; see additional relevant exam policies above. **I take these policies extremely seriously.**

**Important Dates:**

Mon 02/11	Last day to drop without a W
Mon 02/25	Exam 1 closes, Homework 1 – 7 due
Mon 04/08	Exam 2 closes, Homework 8 – 15 due
Mon 04/15	Last day to drop
Mon 05/06	Exam 3 closes, Homework 16 – 21 due

**Tutoring:** Free tutoring is available at all 3 campuses. Check online for hours.

**Course Outline:**

1.1 Linear Equations and Inequalities (Homework 1)

1.2 Graphs and Lines (Homework 2)

2.1 Functions (Homework 3)

4.1 Systems of Linear Equations in Two Variables (Homework 4)

4.2 Systems of Linear Equations and Augmented Matrices (Homework 5)

4.3 Gauss-Jordan Elimination (Homework 6)

4.4 Matrices: Basic Operations (Homework 7)

**Practice Problems for Exam 1**

**Exam 1 covers material in 1.1, 1.2, 2.1, and 4.1 – 4.4**

4.5 Inverse of a Square Matrix (Homework 8)

4.6 Matrix Equations and Systems of Linear Equations (Homework 9)

5.1 Inequalities in Two Variables (Homework 10)

5.2 Systems of Linear Inequalities in Two Variables (Homework 11)

5.3 Linear Programming in Two Dimensions: A Geometric Approach (Homework 12)

3.1 Simple Interest (Homework 13)

3.2 Compound Interest (Homework 14)

3.3 Future Value of an Annuity; Sinking Funds (Homework 15)

**Practice Problems for Exam 2**

**Exam 2 covers material in 4.5 – 4.6, 5.1 – 5.3, and 3.1 – 3.3**

7.2 Sets (Homework 16)

7.3 Basic Counting Principles (Homework 17)

7.4 Permutations and Combinations (Homework 18)

8.1 Sample Spaces, Events, and Probability (Homework 19)

8.2 Union, Intersection, and Complement of Events; Odds (Homework 20)

8.3 Conditional Probability, Intersection, and Independence (Homework 21)

**Practice Problems for Exam 3**

**Exam 3 covers material in 7.2 – 7.4 and 8.1 – 8.3**