



# MATH 103 A543 COLLEGE MATHEMATICS (2172) MATH-103

Spring 2017 Section A543 3 Credits 01/16/2017 to 03/01/2017

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## CLASS SUMMARY

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## FACULTY CONTACT

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## COURSE DESCRIPTION

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Prerequisite: MATH 012 or approval of the department. This course is not intended for students planning to take MATH 107 or higher-numbered mathematics courses and does not serve as a prerequisite for these courses. This course focuses on data driven applications and the development of critical thinking skills related to mathematics. Topics include problem solving, equations, inequalities, linear systems, graphs, functions, consumer mathematics, financial management, probability and statistics. Additional topics may include set theory, Venn Diagrams, deductive and inductive reasoning, and logic.

## COURSE INTRODUCTION

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College Mathematics is designed to show you how mathematics can be applied to your life in interesting, enjoyable, and meaningful ways. This course focuses on problem-solving and critical thinking strategies that offer you the skill-building and practice essential at this level. This course integrates the applications and the technology you need to develop an appreciation of mathematics through your college career and beyond.

## COURSE OUTCOMES

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After completing this course, you should be able to:

1. perform and execute basic arithmetic operations and simplify expressions involving exponents and square roots
2. demonstrate mastery of algebraic skills
3. recognize and apply mathematical concepts to real-world situations
4. efficiently use relevant technology

5. demonstrate understanding of the concepts of functions and related applications
6. identify and solve problems in finance
7. demonstrate proficiency in basic concepts and procedures related to descriptive statistics
8. calculate probabilities, and use and apply the normal distribution

## COURSE MATERIALS

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Click to access your course materials information (<https://webtext.asia.umuc.edu/>)

## CLASS GUIDELINES

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I am available for office hours before and after the assigned class times and by appointment.

**Recitation Sessions:** Supporting resources are available to ensure your success in this course. It is highly recommended that you take advantage of all of these resources. In addition to the scheduled class meetings, MATH 103 will be accompanied by a 2-hour recitation session each week. During these sessions, your instructor will be available to provide you with individual support and tutoring. This service is available to you free of charge. Your instructor will provide you with the days and times of the recitation sessions.

A scientific calculator is required for this class. The TI 30XIIS and TI36 Pro are recommended. The TI30Xa is not recommended.

**Strategies for Success:**

**Study Time:** Students should expect their study time (including reading, homework, and exercises) to be 2-3 times the amount of lecture time. That is, for every hour spent in class, you should expect to spend 2-3 hours out of class studying, reading, and completing homework exercises.

**Staying on Schedule:** It is important to keep pace with the course schedule, assigned readings and work. Students who fall behind or fail to attempt the exercises could well find themselves falling behind schedule and in difficulty. Try to incorporate the skills and methods learned in this course in everyday life. It is the best way to learn.

**Attendance:** It is to your advantage to attend all classes. When absence is unavoidable, it is your responsibility to make-up any work missed before the next class session. If you are absent from a class it is highly recommended that you attend the recitation session and/or online tutoring classroom when making-up the missed work. For administrative purposes only, attendance will be recorded. Students expecting or experiencing long absences during the term should contact the faculty ahead of time.

**Class Discussions:** Students are encouraged to participate in class discussions and to ask questions during the discussions. Doing so will enhance your chances for learning and success in this class. For example, if there are any homework or demonstration problems that you found difficult or were unable to solve, ask questions concerning those problems.

**Reading Assignments:** It is important that you read the assigned textbook chapters prior to class meetings. This practice will ensure that you come to class meetings with a solid basis and with the best chance of success.

**Homework Assignments:** Homework assignments will be given for each class session. These assignments provide you with the opportunity to practice and master the skills and content of the course. You are responsible for solving all problems assigned, and doing so will provide you with the best chance for success in this course. Completing all the homework problems will help you prepare for the exams. Mastery of math depends on

practice, practice, practice! If there are any problems that you found difficult or were unable to solve, be prepared to ask questions concerning those problems during the class discussions or face-to-face recitation sessions.

## GRADING INFORMATION

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There will be three hour tests each worth 100 points, which will be given at the beginning the first class of Week 3, 5, and 7. The Final Exam is worth a maximum of 200 points and will be given the last class of Week 8.

### Assessment Items:

- Hour Test 1 = 100 points (Beginning of first class Week 3)
- Hour Test 2 = 100 points (Beginning of last class Week 4)
- Hour Test 3 = 100 points (Beginning of first class Week 6)
- Comprehensive Final Exam = 200 points

### Course Grade

Your course grade will be calculated in two different ways and the higher percentile will be used to determine your course grade based on 400 points. If the final exam is higher than your lowest hour test grade, it will replace your lowest hour test grade and the final exam will be worth 200 points or 50% of your grade. If the final exam is your lowest grade, then I will use all three hour test scores and the final exam will be counted as 100 points or 25% of your grade.

The course grade will be determined using the following percentages for total points for the course:

- A = 100 to 90%
- B = 89.9% to 80%
- C = 79.9% to 70%
- D = 69.9% to 60%
- F < 60%

## PROJECT DESCRIPTIONS

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### Facility Requirements for Class

This will be a unit class and the following facility requirements are required for the class. UMUC no longer has textbooks for the class and I cover content using PowerPoint slides using a computer and projection system.

Also we will be using the graphing program Geogebra which will run on Windows. I also require a white board to demonstrate the procedure for solving problems. Therefore the unit must provide the following items at the location where the class will be taught:

1. Whiteboard large enough for everyone to see minimally 6' x 3'.
2. Projection system for a computer screen which could be LCD projector or large HDMI accessible flat panel display.
3. Chair and table space for everyone in the class including the instructor.

Alternatively, the class can utilize a classroom at the education center which has these facilities and the classroom would then need to be scheduled.

### Homework:

Students are required to keep a homework notebook that will be collected during the final exam and reviewed. The homework must be done on separate and identifiable pages from the class notes and be in sequence. Students are expected to attempt all assigned problems, show all work as step-by-step procedures, and check their resulting answers with the solution. Ask questions about problems that could not be successfully completed during the help sessions or post your solution on the board prior to the start of class for review at the beginning of class.

Attempt to do the assigned homework problems. The key to success in mathematics is working problems. The more problems you work, the better you will become at working them. Practice doing the sequential steps in solving the example and assigned problems to learn the step-by-step procedures, algorithms and mathematical concepts. Please use as much paper as necessary to work out the problems step-by-step. Writing down the answer alone is usually not acceptable for most problems and will disable your learning processing.

### **Hour Tests:**

A total of three hour tests will be administered in class that will cover material presented in class since the previous test. The tests are closed book and will be similar to the homework so it is important that you do all assigned homework problems. You will need to use pencils, eraser, and your scientific calculator on tests and the final exam. Smart phones may not be used. You are permitted to bring in one 8.5" x 11" sheet of single sided handwritten notes to each hour test.

It is unfair for any student to take a test after the scheduled time. Pending Professor's approval, the student may request via email, before or during the test time, to take a makeup test due to a verifiable excusable absence. Events that constitute an excusable absence are: illness, emergency, and military duty. The makeup test maybe more difficult than the one given to the class and is scheduled at the convenience of UMUC staff. The test must be taken before the next scheduled class, and it is the student's responsibility to go to the UMUC office at their prearranged scheduled time to take the test. Failure to do so will result in a score of zero on the test.

### **Final Exam:**

A different professor writes the common **comprehensive final exam** that is required for this course. This final exam will include the topics and skills covered in the required readings, lectures, and class discussions. The final exam is closed-book and notes. A formula sheet will be provided for final exam. You will need to use your scientific calculator, pencils, and an eraser on the final exam. Smart phones may not be used.

### ***Strategies for Success in MATH103:***

1. **Please read all sections before they are covered in class** and try working through the example problems after reading through the material in each assigned section.
2. **Purchase the recommended scientific calculator** soon after enrolling in class, because they sometimes sell out. The recommended calculator is the Texas Instrument TI-36X Pro or similar 2-line scientific calculator. This calculator features an easy to use two-line algebraic display and includes all the functions used in the course and is usually < \$20.
3. **Attend all Lecture Sections** to learn the material and watch carefully the step-by-step problem solving procedures. Your tuition buys you admission to the scheduled show and there are no second showings. Class attendance is mandatory and understanding each lesson depends on understanding the previous lesson. To understand what goes on in class you must be there. Missing class and then expecting to find out what went on from someone else does not work in Math. Mathematics is NOT a spectator sport. It takes effort, desire, determination, discipline, and time management.

4. **Attend optional recitation Help Sessions** that are offered in addition to the scheduled class meetings. During these sessions, your instructor will be available to provide you with individual support and tutoring. This service is available to you free of charge.
5. **Allocate 20 hours per week to MATH103 class.** Students should expect their study time (including reading, homework, and exercises) to be 2-3 times the amount of lecture time. That is, for every hour spent in class, you should expect to spend 2-3 hours out of class studying, reading, and completing homework exercises for this mathematics class. I would recommend enrolling only MATH103 this term unless you are a full-time student and not Mathematics challenged.
6. **Stay on Schedule** to keep pace with the course, assigned readings, lectures, and homework. Students who fall behind or fail to attempt the homework exercises could find themselves falling behind schedule and in difficulty. Try to incorporate the skills and methods learned in this course in everyday life. It is the best way to learn.
7. **Participate in Class Discussions** is encouraged and it is important to ask questions during class. Doing this will enhance your learning and success in this class. For example, if you find any problems difficult or unsolvable, ask questions concerning those problems in recitation help sessions.
8. **Do Homework assignments incrementally after covered in class.** Students do best when study sessions are between 30 to 60 minutes instead of long cram sessions. It is better to do 3 one-hour study sessions than 1 three-hour study session. Allow enough time to complete the required assignments without getting stressed. Come back to unsolved problems after a break or good night sleep.

# ACADEMIC POLICIES

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## Academic Policies and Guidelines

### ACADEMIC INTEGRITY

As a member of the University of Maryland University College (UMUC) academic community that honors integrity and respect for others you are expected to maintain a high level of personal integrity in your academic work at all times. Your work should be original and must not be reused in other courses.

### CLASSROOM CIVILITY

Students are expected to work together cooperatively, and treat fellow students and faculty with respect, showing professionalism and courtesy in all interactions. Please review the Code of Civility for more guidance on interacting in UMUC classrooms: <https://www.umuc.edu/students/support/studentlife/conduct/code.cfm> (<https://www.umuc.edu/students/support/studentlife/conduct/code.cfm>).

### POLICIES AND PROCEDURES

UMUC is committed to ensuring that all individuals are treated equally according to Policy 040.30 Affirmative Action, Equal Opportunity, and Sexual Harassment (<https://www.umuc.edu/policies/adminpolicies/admin04030.cfm>).

Students with disabilities who need accommodations in a course are encouraged to contact the Office of Accessibility Services (OAS) at [accessibilityservices@umuc.edu](mailto:accessibilityservices@umuc.edu) (<mailto:accessibilityservices@umuc.edu>), or call 800-888-UMUC (8682) or 240-684-2287.

The following academic policies and procedures apply to this course and your studies at UMUC.

- 150.25 Academic Dishonesty and Plagiarism (<https://www.umuc.edu/policies/academicpolicies/aa15025.cfm>) – UMUC defines academic dishonesty as the failure to maintain academic integrity. All charges of academic dishonesty will be brought in accordance with this Policy.
- Note:** Your instructor may use **Turnitin.com**, an educational tool that helps identify and prevent plagiarism from Internet resources, by requiring you to submit assignments electronically. To learn more about the tool and options regarding the storage of your assignment in the Turnitin database go to: <https://www.umuc.edu/library/libresources/turnitin.cfm> (<https://www.umuc.edu/library/libresources/turnitin.cfm>).
- 151.00 Code of Student Conduct (<https://www.umuc.edu/policies/studentpolicies/stud15100.cfm>)
- The following policies describe the requirements for the award of each degree:
- Degree Completion Requirements for the Graduate School (<https://www.umuc.edu/policies/academicpolicies/aa17040.cfm>)
- 170.40 Degree Completion Requirements for a Bachelor’s Degree (<https://www.umuc.edu/policies/academicpolicies/aa17041.cfm>)
- 170.41 Degree Completion Requirements for an Associate’s Degree (<https://www.umuc.edu/policies/academicpolicies/aa17042.cfm>)
- 170.71 Policy on Grade of Incomplete (<https://www.umuc.edu/policies/academicpolicies/aa17071.cfm>) - The grade of I is exceptional and only considered for students who have completed 60% of their coursework with a grade of B or better for graduate courses or C or better for undergraduate courses and request an I before the end of the term.
- 170.72 Course Withdrawal Policy (<https://www.umuc.edu/policies/academicpolicies/aa17072.cfm>) - Students must follow drop and withdrawal procedures and deadlines available at <https://www.umuc.edu/> (<https://www.umuc.edu/>) under Academic Calendar.
- 130.80 Procedures for Review of Alleged Arbitrary and Capricious Grading (<https://www.umuc.edu/policies/academicpolicies/aa13080.cfm>) – appeals may be made on final course grades as described herein.
- 205.06 Calculation Of Grade-Point Average (GPA) for Inclusion on Transcripts and Transcript Requests (<https://www.umuc.edu/policies/academicpolicies/aa20506.cfm>) – Note: Undergraduate and Graduate Schools have different Grading Policies (i.e. The Graduate School does not award the grade of D). See Course Syllabus for Grading Policies.

## GRADING

According to UMUC’s grading policy, the following marks are used:

	Undergraduate	Graduate
<b>A</b>	90-100	90-100
<b>B</b>	80-89	80-89
<b>C</b>	70-79	70-79*

<b>D</b>	60-69	N/A**
<b>F</b>	59 or below	69 or below
<b>FN</b>	Failure-Non attendance	Failure-Non attendance
<b>G</b>	Grade Pending	Grade Pending
<b>P</b>	Passing	Passing
<b>S</b>	Satisfactory	Satisfactory
<b>U</b>	Unsatisfactory	Unsatisfactory
<b>I</b>	Incomplete	Incomplete
<b>AU</b>	Audit	Audit
<b>W</b>	Withdrew	Withdrew

\* The grade of "B" represents the benchmark for The Graduate School. Students must maintain a Grade Point Average (GPA) of 3.0 or higher. Classes where final grade of C or F places a student on Academic Probation must be repeated.

\*\* The Graduate School does not award the grade of D.

### **COURSE EVALUATION SURVEY**

UMUC values its students' feedback. You will be asked to complete an online evaluation toward the end of the term. The primary purpose of this evaluation process is to assess the effectiveness of classroom instruction in order to provide the best learning experience possible and make continuous improvements to every class. Responses are kept confidential. Please take full advantage of this opportunity to provide your feedback.

### **LIBRARY SUPPORT**

Extensive library resources and services are available online, 24 hours a day, seven days a week at <https://www.umuc.edu/library/index.cfm> (<https://www.umuc.edu/library/index.cfm>) to support you in your studies. The UMUC Library provides research assistance in creating search strategies, selecting relevant databases, and evaluating and citing resources in a variety of formats via its Ask a Librarian service at <https://www.umuc.edu/library/libask/index.cfm> (<https://www.umuc.edu/library/libask/index.cfm>).

### **LEARNING MANAGEMENT SYSTEM SUPPORT**

To successfully navigate the online classroom new students are encouraged to view the Classroom Walkthrough under Help in the upper right menu of the LEO classroom. Those requiring technical assistance can access Help@UMUC Support directly in LEO under the Help menu. Additional technical support is available 24 hours a day, seven days a week via self-help and live chat at <https://www.umuc.edu/help> (<https://www.umuc.edu/help>) or by phone toll-free at 888-360-UMUC (8682).

### **SYLLABUS CHANGES**

All items on this syllabus are subject to change at the discretion of the Instructor and the Office of Academic Affairs.

# **CLASS & ASSIGNMENT SCHEDULE**

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This is a tentative schedule. We will need to cover 8 weeks of content over a 7 week term. This will be done using two extra classes, which will likely be taught Fridays Week 1 and 3. The class may go ahead or behind the schedule printed below. It is the student's responsibility to prepare the work that is actually covered each week prior to the next week. Please read and review the sections prior to the class.

<b>Week</b>	<b>Sections</b>	<b>Assigned Chapters, Tests. and Exams</b>
1	1.1-1.3 1.4-1.5	<i>Topics:</i> number theory, prime numbers, order of operations, rational and irrational numbers, exponents, scientific notation, and scientific calculator operations,
2	2.1-2.4 3.1-3.5	<i>Topics:</i> applied problems, ratios, proportions, solve linear equations, algebraic expressions.
3	4.1-4.3 5.1-5.2 5.3-5.4	<b>Test 1 @ Beginning of first class</b> <i>Topics:</i> polynomials, linear inequalities, solving quadratic equations, rectangular coordinate system and graphs.  <i>Topics:</i> graphing linear and quadratic equations
4	5.5-5.6 6.1-6.2	<b>Test 2 @ Beginning of last class</b> Recognizing types of functions and their graphs.  <i>Topics:</i> simple interest, annuities, compound interest,
5	6.3-6.4 7.1-7.2 7.3-7.4	<i>Topics:</i> mortgages, installment loans, percent.  <i>Topics:</i> approaches to probabilities, probability rules and applied problems, counting rules, combination, and permutations.
6	8.1-8.3 8.4-8.5	<b>Test 3 @ Beginning of first class</b> <i>Topics:</i> frequency distributions and graphs, measures of central tendency, measures of dispersion, normal distribution, z-scores, scatter plots, and correlation.
7	Review and Final Exam	<b>Final Examination @ beginning of second class</b>



