

College Algebra MATH 115

Spring 2020

**Section 007
(Tuesday, Thursday 12:30–13:45)**

**Section 008
(Tuesday, Thursday 14:00–15:15)**

**Section 009
(Monday, Wednesday 14:00–15:15)**

INSTRUCTOR

Stanley M. Max
Lecturer in Mathematics

OFFICE

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TELEPHONE

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OFFICE HOURS

Monday 15:30–16:00, Tuesday 15:30–17:00, Wednesday 15:30–16:00, Thursday
15:30–17:00

MY WEBSITE

I will sometimes post important and useful information pertaining to the course on my website. (For example, this syllabus is posted there.) To see the correct page, use this URL: www.stanleymax.net, then click on the tab that says “Course material.”

COURSE DESCRIPTION

Equations and the concept of function; linear, quadratic, higher-degree polynomial, exponential, logarithmic, rational, and power and root functions; complex numbers. Not open to those who successfully completed MATH 119. Prerequisites: qualifying score on Math Placement exam or MATH 102.

LEARNING GOALS

This University core course is designed to meet these four learning goals:

- Construct and evaluate logical arguments
- Apply and adapt a variety of appropriate strategies to solve mathematical problems
- Recognize and apply mathematics in contexts outside of mathematics
- Organize and consolidate mathematical thinking through written and oral communication

COURSE OBJECTIVES

As a result of taking this course, students should learn about various types of mathematical functions. Students should also learn how to apply such functions to solving real-world problems in the life and physical sciences as well as in personal finance.

ONLINE TEXTBOOK

The textbook that this course uses is the following:

Lial, Hornsby, Schneider, Daniels, *Essentials of College Algebra* 12th edition (Pearson, 2019).

REQUIRED TECHNOLOGY

Course materials such as the e-book, online homework, video lectures, and homework hints are provided on MyMathLab (MML). Access to MML will be available through Direct Digital Access, which the University Store offers through Blackboard. The materials will be direct billed to your student account. You should log into your Blackboard account to access and review your materials for the class. You will have access to the online materials for free until February 04 at 23:59 (that is, one minute before midnight). If you wish to opt-out, you must do so by then.

The due dates for the online assignments are listed in your MyMathLab account when you log into it. All the online homework assignments averaged together will count towards 15% of your final grade.

REQUIRED CALCULATOR

A graphing calculator is required for this course, and I recommend that students use some model of TI-83 or TI-84. You may use another make or model of graphing calculator (with some limitations), but I will teach using the TI-83/84. On my website, I have posted separate instructions as to the make and model of graphing calculator that I recommend and that I permit.

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ATTENDANCE

Attendance will be taken at the beginning of every lecture and will count for 5% of the course grade. **Students remain responsible for all instructional activity conducted in each class.**

Regarding absences, the university catalog makes this statement:

“It is policy of the university to excuse the absences of students for the following reasons:

- illness or injury when the student is unable to attend class
- religious observance where the nature of the observance prevents the student from attending class
- participation in university activities at the request of university authorities (e.g., Intercollegiate Athletics, Forensics Team, Dance Company, etc.)
- compelling verifiable circumstances beyond the control of the student

Students requesting an excused absence must provide documentation to the instructor two weeks prior to the scheduled absence when known in advance or as soon as possible when not known in advance.

PREPARING FOR EXAMS AND LEARNING THE MATERIAL

To learn the material and prepare for the exams in this course, above all you should attend class regularly. Furthermore, the online homework assignments provide an excellent learning source, besides being an important component of the course grade.

TUTORING

The Tutoring and Learning Center (TLC) makes tutoring services for this course available on a drop-in basis and by appointment. You can receive tutoring at the Mathematics Lab at 7800 York Road, Room 109. For detailed information, look at the TLC’s website, located at this URL:

<https://www.towson.edu/tutoring-learning/course-support/tutoring/mathematics.html>

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ACADEMIC INTEGRITY

This class is conducted in accordance with the Towson University Code of Student Conduct as described in the TU Catalog or accessed at the following website:

<https://www.towson.edu/about/administration/policies/documents/policies/03-01-00-student-academic-integrity-policy.pdf>

This code prohibits all forms of dishonesty including cheating and plagiarism. Plagiarism is copying the words of another or using the ideas of another without proper citation. Cheating or plagiarism in any form is unacceptable and a penalty commensurate with the offense will be applied. The range of penalties includes deduction of points or rejection of the assignment, failure of the course, or a more severe disciplinary action by university authorities.

DIVERSITY

In accordance with the Towson University Strategic Plan, the Fisher College of Science and Mathematics Diversity Action Plan, and the Department of Mathematics Diversity Action Plan, everyone participating in this course is expected to be respectful of each other without regard to race, class, linguistic background, religion, political beliefs, sex, gender identity or expression, sexual orientation, ethnicity, age, veteran status, or physical ability. If you feel these expectations have not been met, please speak with your instructor or the designated diversity liaison.

DISABILITY SUPPORT SERVICES

This course complies with Towson University policies for students with disabilities. If you are a student with a disability and believe that you may need accommodations for this course, notify me with a memo from Accessibility & Disability Services (ADS). Since accommodations are not retroactive, I strongly recommend that you provide me with notification as early as possible in the term. To register with ADS, or if you have questions about disability accommodations, contact ADS at (410) 704-2638 or visit the ADS office in the Administration Building, Room 232, or visit the ADS website at the following URL:

<https://www.towson.edu/accessibility-disability-services>

STUDENT WORKLOAD EXPECTATIONS

Federal and State regulations require that students should expect to spend at least two hours per week per credit hour for working on course-related activity outside of the classroom. Thus, students are expected to spend at least six hours per week outside of the three hours of classroom lecture to succeed in MATH 115.

Here are examples of outside-classroom activities: reading the textbook before lecture, rewriting lecture notes, redoing problems presented in class, watching videos on MyMathLab, completing assigned homework, completing additional problems to ensure mastery of concepts, and preparing for tests.

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DETERMINATION OF YOUR GRADE

GRADED COMPONENTS	
Test 1	20%
Test 2	20%
Test 3	20%
Final Exam	20%
Online homework	15%
Class participation	5%

FINAL GRADE CUT-OFFS (where x is your overall score)	
A	$93\% \leq x \leq 100\%$
A-	$90\% \leq x < 93\%$
B+	$87\% \leq x < 90\%$
B	$83\% \leq x < 87\%$
B-	$80\% \leq x < 83\%$
C+	$76\% \leq x < 80\%$
C	$70\% \leq x < 76\%$
D+	$66\% \leq x < 70\%$
D	$60\% \leq x < 66\%$
F	$0\% \leq x < 60\%$

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SCHEDULE OF TOPICS

The rest of the syllabus contains a detailed list of the textbook sections that we will go over in class, as well as exam dates and the sections with which the exams will deal.

Week 1 (January 27 – 31)	
<u>Lecture</u>	<u>Homework due and/or Tests</u>
Syllabus and course outline. <i>Section R.3: “Polynomials”</i> <i>Section R.4: “Factoring Polynomials”</i> <i>Section R.5: “Rational Expressions”</i>	

February 04
Change-of-schedule period ends
Last day to drop a course with no grade posted to academic record
Last day to add a course

Week 2 (February 03 – 07)	
<u>Lecture</u>	<u>Homework due and/or Tests</u>
<i>Section R.6: “Rational Exponents”</i> <i>Section R.7: “Radical Expressions”</i> <i>Section 1.1: “Linear Equations”</i>	

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Week 3 (February 10 – 14)	
<u>Lecture</u> <i>Section 1.2:</i> “Applications and Modeling with Linear Equations” <i>Section 1.3:</i> “Complex Numbers” <i>Section 1.4:</i> “Quadratic Equations”	<u>Homework due and/or Tests</u>

Week 4 (February 17 – 21)	
<u>Lecture</u> <i>Section 1.5:</i> “Applications and Modeling with Quadratic Equations” <i>Section 1.6:</i> “Other Types of Equations and Applications”	<u>Homework due and/or Tests</u>

Week 5 (February 24 – 28)	
<u>Lecture</u> <i>Section 1.7:</i> “Inequalities” Review for Test 1	<u>Homework due and/or Tests</u> Test 1 (covers Sections 1.1, 1.2, 1.3, 1.4, 1.5, 1.6)

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Week 6 (March 02 – 06)	
<u>Lecture</u>	<u>Homework due and/or Tests</u>
<i>Section 1.8: “Absolute Value Functions and Inequalities”</i>	Homework #1, which covers R. 3 — due on March 02 at 08:00.
<i>Section 2.1: “Rectangular Coordinates and Graphs”</i>	Homework #2, which covers R. 4 — due on March 02 at 08:00.
<i>Section 2.3: “Functions”</i>	Homework #3, which covers R. 5 — due on March 02 at 08:00.
	Homework #4, which covers R. 6 — due on March 02 at 08:00.
	Homework #5, which covers R. 7 — due on March 02 at 08:00.
	Homework #6, which covers Section 1. 1 — due on March 02 at 08:00.
	Homework #7, which covers Section 1.2 — due on March 02 at 08:00.
	Homework #8, which covers Section 1.3 — due on March 02 at 08:00.
	Homework #9, which covers Section 1.4 — due on March 02 at 08:00.
	Homework #10, which covers Section 1.5 — due on March 02 at 08:00.
	Homework #11, which covers Section 1.6 — due on March 02 at 08:00.
	Homework #12, which covers Section 1.7 — due on March 02 at 08:00.

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Week 7 (March 09 – 13)	
<u>Lecture</u> <i>Section 2.4:</i> “Linear Functions” <i>Section 2.5:</i> “Equations of Lines and Linear Models” <i>Section 2.6:</i> “Graphs of Basic Functions”	<u>Homework due and/or Tests</u>

March 16 – 20
Spring Break: No classes

Week 8 (March 23 – 27)	
<u>Lecture</u> <i>Section 2.7:</i> “Graphing Techniques” <i>Section 2.8:</i> “Function Operations and Composition” Review for Test 2	<u>Homework due and/or Tests</u>

Week 9 (March 30 – April 03)	
<u>Lecture</u> <i>Section 3.1:</i> “Quadratic Functions and Models” <i>Section 3.2:</i> “Synthetic Division”	<u>Homework due and/or Tests</u> Test 2 (covers Sections 1.7, 1.8, 2.1, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8)

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April 06

Last day to withdraw with a grade of 'W'

Last day to change to pass/fail option or audit options

Week 10 (April 06 – 10)

Lecture

Section 3.3: “Zeros of Polynomial Functions”

Section 3.4: “Polynomial Functions: Graphs, Applications, and Models”

Homework due and/or Tests

Homework #13, which covers Section 1.8 — due on April 06 at 08:00.

Homework #14, which covers Section 2.1 — due on April 06 at 08:00.

Homework #15, which covers Section 2.3 — due on April 06 at 08:00.

Homework #16, which covers Section 2.4 — due on April 06 at 08:00.

Homework #17, which covers Section 2.5 — due on April 06 at 08:00.

Homework #18, which covers Section 2.6 — due on April 06 at 08:00.

Homework #19, which covers Section 2.7 — due on April 06 at 08:00.

Homework #20, which covers Section 2.8 — due on April 06 at 08:00.

Homework #21, which covers Section 3.1 — due on April 06 at 08:00.

Homework #22, which covers Section 3.2 — due on April 06 at 08:00.

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Week 11 (April 13 – 17)	
<u>Lecture</u> <i>Section 3.5: “Rational Functions: Graphs, Applications, and Models”</i> <i>Section 3.6: “Variation”</i>	<u>Homework due and/or Tests</u>

Week 12 (April 20 – 24)	
<u>Lecture</u> <i>Section 4.1: “Inverse Functions”</i> Review for Test 3	<u>Homework due and/or Tests</u> Test 3 (covers Sections 3.1, 3.2, 3.3, 3.4, 3.5, 3.6)

Week 13 (April 27 – May 01)	
<u>Lecture</u> <i>Section 4.2: “Exponential Functions”</i> <i>Section 4.3: “Logarithmic Functions”</i> <i>Section 4.4: “Evaluating Logarithms and the Change-of-Base Theorem”</i>	<u>Homework due and/or Tests</u> Homework #23, which covers Section 3.3 — due on April 27 at 08:00. Homework #24, which covers Section 3.4 — due on April 27 at 08:00. Homework #25 which covers Section 3.5 — due on April 27 at 08:00. Homework #26, which covers Section 3.6 — due on April 27 at 08:00. Homework #27, which covers Section 4.1 — due on April 27 at 08:00.

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Weeks 14 and 15 (May 04 – 12)

<u>Lecture</u>	<u>Homework due and/or Tests</u>
<p><i>Section 4.5</i>: “Exponential and Logarithmic Equations” and <i>Section 4.6</i>: “Applications and Models of Exponential Growth and Decay” (begin)</p> <p>Review for Final Exam</p>	<p>Homework #28, which covers Section 4.2 — due on May 12 at 08:00.</p> <p>Homework #29, which covers Section 4.3 — due on May 12 at 08:00.</p> <p>Homework #30, which covers Section 4.4 — due on May 12 at 08:00.</p> <p>Homework #31, which covers Section 4.5 — due on May 12 at 08:00.</p> <p>Homework #32, which covers Section 4.6 — due on May 12 at 08:00.</p>

Final Exam period (May 13 – 19)