Intermediate Algebra
MATH 102

Fall 2019

Section 010 (Monday, Wednesday 15:30–16:45)

INSTRUCTOR

Stanley Max
Lecturer in Mathematics

OFFICE

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OFFICE HOURS

Monday 17:00–18:00, Tuesday 15:30–16:30, Wednesday 17:00–18:00, Thursday 15:30–16:30.

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

MATH 102 is intended primarily for students who will use algebraic skills in future mathematics courses. Topics include factoring of polynomials, rational expressions and equations' graphs, relations and functions, radicals and exponents, and quadratic equations. Prerequisite: qualifying score on placement test or MATH 95.

MATH 102 is intended for students who plan to take either MATH 115 or MATH 119 as their Core Curriculum mathematics course. (See requirements for your intended major.) You must earn a grade of C in MATH 102 in order to take the Core Curriculum mathematics course.

TEXTBOOK

The textbook that this course uses is the following:

Sullivan, Struve, and Mozzarella, *Elementary and Intermediate Algebra* 4th 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 in to your Blackboard account to access and review your materials for the class. You will have access to the online materials for free until September 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.

CALCULATORS

All students should bring a scientific calculator to class daily. You are permitted to use a scientific calculator on all examinations. You may not share a calculator with someone else during a test. You may not use a graphing or programmable calculator (such as a TI-83/84, TI-89, TI-93, or TI-nspire). Also, you many not use any other electronic device such as a cell phone, tablet, or music player during class or during a test. Graphing calculators will be used in Chapter 8, but they are not required.

Before the first test, you need to obtain a scientific calculator and get comfortable using it.

Remember, graphing and/or programmable calculators are <u>not</u> permitted for tests. If you have any questions about whether a calculator is acceptable, ask your instructor.

COURSE OBJECTIVES

As a result of taking this course, students should learn how to carry out the following mathematical procedures:

- Factor accurately and completely
- Solve quadratic equations and by factoring and applying the zero-product rule
- Determine the points where a rational function is not defined
- Simplify a rational expression
- Add, subtract, multiply, and divide rational expressions
- Solve rational equations
- Simplify complex fractions
- Differentiate between rational functions and rational equations
- Graph equations
- Determine domain, range, and intercepts for a given function
- Determine whether a relation is a function
- Find the value of a dependent or of an independent variable for a given function
- Identify the input and output for a function given as $f(a)=b$
- List as ordered pairs points that satisfy a given function
- Graph a linear function
- Find a solution to compound inequalities and express as a set, an interval, or a graph on the number line
- Simplify radicals
- Operate on radicals
- Evaluate numerical expressions with negative or rational exponents
- Use laws of exponents to simplify expressions
- Solve quadratic equations by using the quadratic formula
- Use graphing calculator to graph and interpret functions

GRADING

This course earns three credits for graduation, but it does not satisfy a Core Curriculum requirement. The course grade is calculated by using the following percentages.

GRADED COMPONENTS	
Test 1	18%
Test 2	18%
Test 3	18%
Final Exam	26%
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	$0\% \leq x < 60\%$

FINAL EXAM (Friday, December 13, 15:00–17:00)

The final exam, although cumulative, will place special emphasis on Chapter 9 and on Section 10.2.

ATTENDANCE

Attendance will be taken at the beginning of every lecture, and class participation 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 Academic Achievement Center (ACC) 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 ACC's website, located at this URL:

https://www.towson.edu/aac/

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/polices/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

Towson University is committed to providing equal access to its programs and services for students with disabilities, in accordance with Section 504 of the Rehabilitation Act of 1973 and the Americans with disabilities Act of 1990. To learn how to arrange for any appropriate accommodations, students with disabilities should visit the Disabilities Support Services (DSS) webpage at this URL:

http://www.towson.edu/dss

If you are a student with disabilities, then you have the responsibility to let me know that you have needs in this area. You will need a memo from DSS authorizing accommodations.

STUDENT WORLOAD 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 102.

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.

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 (August 26 – 30)	
Lecture	**Homework due and/or Tests**
Syllabus and course outline. *Section 6.1:* "Greatest Common Factor and Factoring by Grouping" *Section 6.2:* "Factoring Trinomials of the Form x^2+bx+c"	Homework #1, which covers Section 6.1 — due on September 10 at 08:00. Homework #2, which covers Section 6.2 — due on September 10 at 08:00.

September 02
Labor Day: No classes

September 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 (September 03 – 06)	
Lecture	**Homework due and/or Tests**
Section 6.3: "Factoring Trinomials of the Form $ax^2+bx+c, \quad a\neq 1$" *Section 6.4:* "Factoring Special Products"	Homework #3, which covers Section 6.3 — due on September 10 at 08:00. Homework #4, which covers Section 6.4 — due on September 10 at 08:00.

Week 3 (September 09 – 13)	
Lecture	**Homework due and/or Tests**
Section 6.5: "Summary of Factoring Techniques"	Homework #5, which covers Section 6.5 — due on September 17 at 08:00.
Section 6.6: "Solving Polynomial Equations by Factoring"	Homework #6, which covers Section 6.6 — due on September 17 at 08:00.

Week 4 (September 16 – 20)	
Lecture	**Homework due and/or Tests**
Chapter 6 Review	**Test 1** (covers Sections 6.1, 6.2, 6.3, 6.4, 6.5, 6.6
Section 7.1: "Simplifying Rational Expressions"	Homework #7, which covers Chapter 6 Review — due on September 24 at 08:00.
	Homework #8, which covers Section 7.1 — due on September 24 at 08:00.

Week 5 (September 23 – 27)	
Lecture	**Homework due and/or Tests**
Section 7.2: "Multiplying and Dividing Rational Expressions"	Homework #9, which covers Section 7.2 — due on October 01 at 08:00.
Section 7.3: "Adding and Subtracting Rational Expressions with a Common Denominator"	Homework #10, which covers Section 7.3 — due on October 01 at 08:00.

Week 6 (September 30 – October 04)	
Lecture	**Homework due and/or Tests**
Section 7.4: "Finding the Least Common Denominator and Forming Equivalent Rational Expressions" *Section 7.5:* "Adding and Subtracting Rational Expressions with Unlike Denominators"	Homework #11, which covers Section 7.4 — due on October 08 at 08:00. Homework #12, which covers Section 7.5 — due on October 08 at 08:00.

Week 7 (October 07 – 11)	
Lecture	**Homework due and/or Tests**
Section 7.6: "Complex Rational Expressions" *Section 7.7:* "Rational Equations"	Homework #13, which covers Section 7.6 — due on October 15 at 08:00. Homework #14, which covers Section 7.7 — due on October 15 at 08:00.

Week 8 (October 14 – 18)	
Lecture	**Homework due and/or Tests**
Section 7.8: "Models Involving Rational Equations" *Chapter 7 Review*	**Test 2** (covers Sections 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8) Homework #15, which covers Section 7.8 — due on October 22 at 08:00. Homework #16, which covers Chapter 7 Review — due on October 22 at 08:00.

Week 9 (October 21 – 25)	
Lecture	**Homework due and/or Tests**
Section 8.1: "Graphs of Equations" *Section 8.2:* "Relations" *Section 8.3:* "An Introduction to Functions"	Homework #17, which covers Section 8.1 — due on October 29 at 08:00. Homework #18, which covers Section 8.2 — due on October 29 at 08:00. Homework #19, which covers Section 8.3 — due on October 29 at 08:00.

Week 10 (October 28 – November 01)	
Lecture	**Homework due and/or Tests**
Section 8.4: "Functions and Their Graphs" *Section 8.5:* "Linear Functions and Models"	Homework #20, which covers Section 8.4 — due on November 05 at 08:00. Homework #21, which covers Section 8.5 — due on November 05 at 08:00.

November 04
Last day to withdraw with a grade of 'W' **Last day to change to pass/fail option or audit options**

Week 11 (November 04 – 08)	
Lecture	**Homework due and/or Tests**
Section 8.6: "Compound Inequalities" *Chapter 8 Review*	**Test 3** (covers Sections 8.1, 8.2, 8.3, 8.4, 8.5, 8.6) Homework #22, which covers Section 8.6 — due on November 12 at 08:00. Homework #23, which covers Chapter 8 Review — due on November 12 at 08:00.

Week 12 (November 11 – 15)	
Lecture	**Homework due and/or Tests**
Section 9.1: "Square Roots" *Section 9.2:* "*n*th Roots and Rational Exponents"	Homework #24, which covers Section 9.1 — due on November 19 at 08:00. Homework #25, which covers Section 9.2 — due on November 19 at 08:00.

Week 13 (November 18 – 22)	
Lecture	**Homework due and/or Tests**
Section 9.3: "Simplifying Expressions Using the Laws of Exponents" *Section 9.4:* "Simplifying Radical Expressions Using Properties of Radicals"	Homework #26, which covers Section 9.3 — due on November 26 at 08:00. Homework #27, which covers Sections 9.4 and 4.5 — due on November 26 at 08:00.

Week 14 (November 25 – 26)	
Lecture	**Homework due and/or Tests**
Section 9.5: "Exponential and Logarithmic Equations"	Homework #28, which covers Section 9.5 — due on December 03 at 08:00.

November 27 – 29
Thanksgiving Holiday: No classes

Weeks 15 and 16 (December 02 – 09)	
Lecture	**Homework due and/or Tests**
Section 9.6: "Rationalizing Radical Expressions"	Homework #29, which covers Section 9.6 — due on December 12 at 08:00.
Section 10.2: "Solving Quadratic Expressions by the Quadratic Formula"	Homework #30, which covers Section 10.2 — due on December 12 at 08:00.
Chapter 9 and Chapter 10 Review	Homework #31, which covers Chapters 9 and 10 Review — due on December 12 at 08:00.

Final Exam: Friday (December 13) 15:00–17:00