

Time and Location: MWF 10:00-10:50 GH5300

Instructor: Seung-Moon Hong, UH2030M, (419)530-2804, seungmoon.hong@utoledo.edu

Office hours: M 2:30-5:00, R 10:00-12:30

Textbook: *College Algebra*, First edition by Julie Miller, McGraw-Hill 2014. ALEKS online access is provided with the textbook or may be purchased from www.ALEKS.com (you need a credit card). The textbook is highly recommended but not required. An e-book is included with access to ALEKS. Access to a PC or Mac connected to the web and on which you have privileges to install browser plug-ins (for ALEKS).

Register for ALEKS course with **course code: UNDNM-DWQLP**

Your Financial Aid Access Code is: 99942-B74E1-24A64-B3FC0 (Only for two weeks)

Catalog Description: This course covers a review of number system, elementary theory of equations and inequalities, functions and relations, exponentials and logarithms, system of equations and topics in analytic geometry.

Prerequisites: The prerequisite for this course is Intermediate Algebra. You can demonstrate that you have met this prerequisite in one of 3 ways: ACT math score of 20 or higher, Sufficient score on the ALEKS Placement Exam, or Passing Math 1200.

Calculator: The student must own or have access to a scientific calculator that has memory, parentheses, exponent and root keys. A graphing calculator is helpful but not required. Cell Phones/Smart Phones are not allowed during quizzes and exams.

Learning objectives:

The objective of this course is to develop the students' mathematical skills, with emphasis on problems relating to algebra and polynomials. A more detailed list of learning objectives is given below. At least 70% of the course time will be devoted to these essential outcomes. These objectives are listed again in the chronological list of topics at the end of this syllabus.

- **Representation:** Graphical, algebraic, numerical, and verbal representation of linear, quadratic, polynomial, rational, root/radical/power, exponential, logarithmic and piecewise-defined functions.
- **Graphs:** Determine whether an algebraic relation or given graph represents a function; perform transformations on graphs and operations with functions; determine intercepts, domain, range, intervals of monotonicity, vertex of a quadratic, asymptotes, symmetry; and match graphs to algebraic definitions.
- **Remainder and Factor Theorems:** Use the remainder and Factor Theorems for polynomial functions.
- **Inverse functions:** Describe the relationship of the graph of a function to that of its inverse; determine the algebraic form of inverse functions.
- **Modeling:** Use functions to model a variety of real-world problem-solving applications.

- **Properties of equations:** Recognize the difference between an algebraic equations and function; describe the relationship among the solutions of an equation and the zeros of the corresponding function; identify the coordinates of the x-intercepts of the graph of a function.
- **Solution of equations:** Solve a variety of equations, including polynomial, rational, exponential, and logarithmic, including equations arising in applications; solve a system of linear equations graphically and algebraically by substitution and elimination; and solve polynomial and rational inequalities graphically and algebraically

Grading: The evaluation for this course will be based upon a percentage of the total of homework, quiz, and exams. Homework/Objective (ALEKS) 15%, Quizzes 10%, Exam I 15%, Exam II 15%, Exam III 15%, Final Exam 30%.

The final letter grade will be based on the following percentages of total points:

Total average	Below 60%	60%–69%	70%–79%	80%–89%	90%–100%
Grade	F	D	C	B	A

Assessment of Student Learning: Assessments will be based on a combination of homework, quizzes, tests and a final exam. The student will demonstrate the ability to apply mathematical reasoning and skills to solve problems in all the outcome areas.

Resources: There are resources available for students who need extra help outside my office hours. For this course the most reliable source of tutorial help can be found at the Mathematics Learning and Resource Center, B0200, located in the basement of Carlson Library-phone ext. 2176. It operates on a walk-in basis. LEC Tutoring Hours: Monday/Thursday 9 am–8 pm, Tuesday/Wednesday 9 am–9pm, Friday 9 am–2 pm. Be sure to bring your book, notes from class, and specific problems you want help with. Tutors are not teachers. They are there only to help with *specific problems*.

Attendance: You are expected to attend each class session. The class will consist of two activities on most days: 1) review of homework problems and 2) presentation of new ideas. The class will generally begin with a call for questions. This is your chance to clarify any problems that you may have. If you attend class, it is assumed that you will participate actively by asking questions and participating in discussions. Any announcements made in class regarding the schedule of future classes, exams or other information takes precedence over this outline.

Missed Quizzes and Exams: If you miss a class you are responsible for obtaining the material, notes, etc. *Missed exams can be made up only by prior arrangement and must be taken by the next class session. There will be no make-up for quizzes.*

Missed Class Policy: If circumstances occur in accordance with "The University of Toledo Missed Class Policy" (found at http://www.utoledo.edu/facsenate/missed_class_policy.html) result in a student missing a quiz, test, exam or other graded item, the student must contact the instructor in advance by phone, e-mail or in person, provide official documentation to back up his or her absence, and arrange to make up the missed item as soon as possible.

Preparation for Class: You are expected to prepare for class, to have read the indicated sections prior to the class session and have your homework completed by the indicated date. This is a three credit hour course and you should expect to spend 5 to 8 hours outside of class reading, studying and doing homework problems. The syllabus schedule indicates the order in which the sections will be discussed.

Homework: It will be assigned and graded on ALEKS. Homework problems allow you to test your knowledge and improve your skills. It is a very important part of this course, since you learn the material by doing the problems. Working together is allowed, even encouraged, however be sure to do your own work. *Late homework is NOT accepted.*

Quizzes: There will be a quiz weekly. Some will be announced and some will not. *No late quiz is accepted.*

Exams: There will be three in class exams and a comprehensive final exam given during scheduled final exam period for the section.

Cell Phones and Laptop Computer Usage: Please turn off your cell phone and keep it stored away. You can use a laptop computer to take notes, but it cannot be used for any other purpose.

Drop/Withdrawal: The last day to drop or add this course is the Friday of the second week of classes. The last day to withdraw from this class with a grade of W is the Friday of the tenth week of classes.

Academic Honesty: Successful completion of this course requires personal integrity and honest academic effort. Any dishonest activities will not be tolerated in this course. Any student who engages in dishonest behavior will, at the instructor's discretion, fail the exam, fail the course, or more serious consequences. See the University's "Policy Statement on Academic Dishonesty".

Non-Discrimination Policy: The University of Toledo is committed to a policy of equal opportunity in education, affirms the values and goals of diversity.

Students with Disabilities: The University will make reasonable academic accommodations for students with documented disabilities. Students should contact the Office of Accessibility (Rocket Hall 1820; 419.530.4981; officeofaccessibility@utoledo.edu) as soon as possible for more information and/or to initiate the process for accessing academic accommodations. For the full policy see: <http://www.utoledo.edu/success/academicaccess/sam/index.html>

Students Privacy: Federal law and university policy prohibits instructors from discussing a student's grades or class performance with anyone outside of university faculty/staff without the student's written and signed consent. This includes parents and spouses. For details, see the "Confidentiality of student records (FERPA)" section of the University Policy Page at <http://www.utoledo.edu/policies/academic/undergraduate/index.html>.

Important Dates:

Last day to add/drop	Aug 30
Exam I	Sep 16
Exam II	Oct 21
Last day to withdraw	Oct 25
Exam III	Nov 22
Final Exam	Dec 11, 10:15-12:15

Schedule:

Topics to be covered: Learning Objectives covered by that topic follow in italics.

Chapter R, Sections 1–7 Review	Real Numbers, exponents and radicals, polynomials, factoring, rational expressions, rectangular coordinates: <i>Representation</i>	4 hours
Chapter 1, Sections 1–8	Graphs, linear equations and modeling, quadratic equations, complex numbers, inequalities: <i>Graphs, Properties of equations, Solution of equations, Modeling</i>	8 hours
Chapter 2, Sections 1–8	Linear equations, functions and their graphs, transformations, compositions, inverse functions: <i>Properties of equations, Inverse functions, Modeling</i>	7 hours
Chapter 3, Sections 1–4	Quadratic functions, polynomials of higher degree, synthetic division, roots of polynomials: <i>Representation, Remainder and Factor Theorems</i>	4 hours
Chapter 3, Sections 5–6	Rational functions and their graphs, asymptotes: <i>Graphs</i>	3 hours
Chapter 4, Sections 1–6	Exponential and logarithmic functions: <i>Representation, Modeling</i>	5 hours
Chapter 5, Sections 1–4	Systems of equations and inequalities: <i>Graphs, Properties of equations, Solution of equations, Modeling</i>	4 hours
Chapter 6, Sections 1–3	Matrices and Applications: <i>Properties of equations, Solution of equa- tions, Modeling</i>	3 hours
Chapter 7, Sections 1–3	Analytic Geometry, The Ellipse, Hyperbola and Parabolas: <i>Graphs, Properties of equations</i>	2 hours
Chapter 8, Sections 1–3	Sequences and Series: <i>Representation, Modeling</i>	2 hours