

**Math 110 Algebra, Section 1**  
**Spring 2018**  
**01/06/2018**

**Class times:** MWF 8:00 – 8:50 am

**Class location:** Phillips 335

**Instructor:** Linda Gree

**Email:** [greenl@email.unc.edu](mailto:greenl@email.unc.edu)

**Office location:** Phillips 338

**Office hours:** M 3:30 – 4:30, Tu 3:30 – 4:30, W 2:30 – 3:30, Th 9:30 – 10:30, F 9:00 – 10:00  
and by appointment.

**Course Coordinator:** Linda Green, [greenl@email.unc.edu](mailto:greenl@email.unc.edu), Phillips 338

**Materials:**

ALEKS: This class will use the ALEKS online system. Please sign up at [www.aleks.com](http://www.aleks.com) using the course code **3FRTC-MMDHD**. ALEKS costs about \$100 for the semester. See instructions below.

Textbook: The textbook is *College Algebra* by Miller and Gerken, 2<sup>nd</sup> Edition. This textbook is a good reference for this class, but you are not required to buy it if you are comfortable using class notes and online explanations given in ALEKS instead. Homework assignments will be given from ALEKS, not from the textbook. When you purchase ALEKS, you can choose to include an ebook of the textbook for about \$10 more. I encourage you to do so, because the ebook includes many videos as well as additional problems and explanations.

Piazza: Please use Piazza instead of email to ask questions about homework problems and logistics. Other students and the instructors can answer them there for the benefit of all students. See details below.

Poll Everywhere: You will need to register for the class's Poll Everywhere site to answer questions in class using your cell phone or laptop. See the instructions below.

Calculator: You will need a basic scientific calculator. A graphing calculator (e.g. TI-84 or TI-89), or a graphing calculator app, can be helpful for visualizing functions and checking answers on homework. Calculators will not be allowed on some tests or portions of tests. Calculators will not be allowed on the final exam. Phone apps or calculators with internet access will not be permitted on any tests.

Videos: Instructional videos are posted on YouTube with links on Sakai. Additional videos are available within ALEKS.

Math Help Center: The Math Help Center in Phillips 237 is open for drop in tutoring M – Th 10:00 – 6:00 and F 10:00 – 3:00. Students are expected to visit the Math Help Center for additional help and instruction outside of class.

Other: Supplementary materials will be posted on Sakai. Look for files in the resources folder.

**Placement:**

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Placement information is located online at <http://math.unc.edu/for-undergrads/placement-info>  
Students who received at least a 520 on the SAT Math Subject 1 or 2 test or at least a 27 on the ACT math portion already have placement credit (Math 110P) and do not need to take the class. Students who have not taken the SAT, ACT, AP, or IB test *are* eligible to enroll in Math 110. If you are not sure about your placement, please contact the course coordinator Linda Green at [greenl@email.unc.edu](mailto:greenl@email.unc.edu).

**Math 110 DOES NOT fulfill the Quantitative Reasoning requirement.** Math 110 should ONLY be taken by students who need to take Math 130 or classes in Chemistry, Statistics, or Exercise Sports Science that require it as a prerequisite.

**Course Description:**

The main goal of Math 110 is to ensure your preparation for other courses.

The course is divided into the following main topics:

- Review of Exponent Rules, Factoring, Rational Expressions and Radicals
- Equations and Inequalities
- Function and Graphs
- Exponential and Logarithmic Functions
- Systems of Equations
- Polynomials and Rational Functions
- Composition and Inverses of Functions

**Course Objectives:**

- Simplify expressions involving absolute value, exponents, and radicals.
- Simplify expressions by factoring.
- Solve linear and quadratic equations and equations involving absolute value or radicals or rational expressions.
- Solve inequalities using a sign chart.
- Construct equations for circles and graph circles from equations.
- Find the domain and range of functions.
- Graph linear, quadratic, polynomial, and rational functions and analyze their graphs.
- Apply transformations (shifting, stretching, shrinking, reflecting) to graphs of functions.
- Use equations to model exponential growth and decay.
- Solve equations involving exponents and logs.
- Solve systems of equations.
- Compose functions
- Find inverses of functions

**Class Structure:**

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- Students are expected to prepare for each class by watching assigned videos and completing before-class assignments posted on ALEKS.
- Usually, the first part of class will be spent on interactive lecture and the second part on problem solving in ALEKS.
- During the problem solving portion, the instructor and the classroom assistants will circulate to help students individually and / or pull aside groups of students for additional instruction.

**ALEKS:**

This class will use the ALEKS online system for all homework, for before-class assignments, for periodic knowledge checks, and possibly for parts of tests. Please sign up at [www.aleks.com](http://www.aleks.com) using the class code **3FRTC-MMDHD**. The ALEKS program will give you a diagnostic test and then give you problems and explanations that adapt to your needs. In this way, you will only work on topics that you personally need to review, and you won't waste much time on problems that you already know how to do. Please budget at least 2 hours for the diagnostic test and give it your best effort, since an accurate diagnostic test will save you time in the long run. You do not have to complete it in one sitting, but please do complete it before the semester starts if at all possible.

**Piazza:** Instead of emailing the instructor with questions about homework problems or logistics, please post your questions on Piazza. Other students and the instructors can answer them there for the benefit of all students. If you were not already automatically added to Piazza, you can register yourself here: [piazza.com/unc/spring2018/math110](http://piazza.com/unc/spring2018/math110)

**Poll Everywhere Questions:**

During lecture, the instructor will ask questions for all students to answer using Poll Everywhere on their phones or laptops. Poll Everywhere questions will be graded for participation only, and not for the correctness of the response. The final Poll Everywhere grade will be computed out of 85%, so that students with a PollEverywhere average of 85% or higher will get 100% as their Poll Everywhere grade.

In order to get credit for answers, students need to register for Poll Everywhere through UNC's service at <https://help.unc.edu/help/poll-everywhere-faq/>. Be sure to go through UNC's website listed above and do NOT sign up directly at [polleverywhere.com](http://polleverywhere.com). There is no charge for students to use Poll Everywhere, but students will need to bring a phone with texting ability or a laptop to class. Students who have registered for Poll Everywhere previously for another course do not need to register again for this course.

**Warm-up tests and quizzes:**

Before each test, there will be a graded warm-up test given in class: students will complete problems similar to test problems, first individually and then in groups. In addition to the warm-up tests, there may be occasional quizzes given in class. No make-ups will be given for warm-up tests or quizzes. However, if a student misses a warm-up test, their actual test score will be substituted for their warm-up test score.

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**Tests:**

There will be three tests. Tests may be given through ALEKS, or on paper, or as a combination. The tentative test dates are as follows:

- **Test 1 2/2/2018**
- **Test 2 3/2/2018**
- **Test 3 4/4/2018**

**The comprehensive final exam will be on Thursday, May 3 from 4:00 pm – 7:00 pm.**

The final exam is given in compliance with UNC's final exam regulations and calendar, and will not be given prior to this exam date. In order to take a make-up exam after this date, you must have an official examination excuse, signed by a Dean or authorized agent of the Dean. You must bring this excuse and a picture ID to the make-up exam.

**Grading:**

Course letter grades will be assigned as follows.

92.5- 100	A	76.5 - 79.4	C+
89.5 – 92.4	A–	72.5 – 76.4	C
86.5 - 89.4	B+	69.5 - 72.4	C–
82.5 – 86.4	B	66.5 - 69.4	D+
79.5 – 82.4	B–	59.5 – 66.4	D
		0 - 59.4	F

There are no grades of D– or F+.

Your course grade will be determined as follows:

<b>ALEKS Objectives</b>	<b>6%</b>
<b>ALEKS Pie Completion</b>	<b>6%</b>
<b>ALEKS Before Class Assisgnments</b>	<b>2%</b>
<b>PollEverywhere</b>	<b>2%</b>
<b>Quizzes / Warm-Up Tests</b>	<b>3%</b>
<b>Tests</b>	<b>45%</b>
<b>Final Exam</b>	<b>36%</b>
<b>Total :</b>	<b>100%</b>

If a student misses a test, then the 0 for the missed test will be replaced by the final exam score. If a student does not miss any tests, then the lowest test score will be replaced by the final exam score if the final exam score is higher.

University policy does not allow a course grade to be changed unless there has been a verifiable clerical error in the grade calculation. There are no extra credit opportunities.

**Late work:** No late tests or make-up tests will be given. Students who need to miss a test for a UNC athletic team event, UNC academic field trip, or religious holiday can take the test in absentia or in advance with at least a week advance notice and written documentation. No other exceptions will be made. For homework, because the ALEKS scores are weighted half for objectives and half for pie completion, ALEKS topics completed before the due date will earn

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full credit (objective completion points and pie completion points), and topics completed after the due date will earn half-credit (pie completion points only). For ALEKS before-class assignments, no late work will be accepted. If at least 75% of students complete the mid-semester survey, the lowest before-class assignment will be dropped. If at least 75% of students complete the course evaluation at the end of the semester, the second lowest before-class assignment will be dropped.

**Honor Code:**

It is expected that each student in this class will conduct him or herself within the guidelines of the UNC Honor System, described at <http://studentconduct.unc.edu/students>.

In this class, all tests and exams are closed book and closed notes. All tests and exams must be completed individually, and it is an instance of cheating to give or receive help on a test or exam, except from the instructor, with the exception of warm-up tests, which may have a group component. On homework assignments and in-class problem-solving exercises, students are encouraged to work together in pairs or small groups, provided that all participants are contributing and the collaboration benefits the learning of all involved. Simply copying or trading answers is an instance of cheating. If you are not sure if collaboration is permitted, please ask!

In addition to avoiding actual academic dishonesty, please avoid appearances of academic dishonesty. In particular, please silence and put away cell phones before any exams are handed out and please avoid the appearance of looking at other students' papers. In order to maintain a proper testing atmosphere, the instructor may ask students to switch seats before or during an exam.

Students who observe a violation of the honor code should report it to the instructor. The instructor will report any suspected honor code violations to the Student Attorney General.

**Additional Resources:**

- The Math Department sponsors free tutoring in the Math Help Center in 237 Phillips Hall. Typical hours are M – Th 10:00 – 6:00, F 10:00 – 3:00. See <http://math.unc.edu/for-undergrads/help-center> for updates and details.
- Free tutoring is available on the second floor of Dey Hall on Tues. and Wed. evenings from 6 – 9 pm.
- Some semesters, the Learning Center facilitates a study group for Math 110 called Math Plus that meets weekly in SASB North. For details, contact Jackie Stone at [jacsto@email.unc.edu](mailto:jacsto@email.unc.edu).
- The Learning Center also has a math coach who can give tips on how to study for and succeed in a math class.
- The Math Department keeps a list of paid tutors in the main office in Phillips 329 and on the Math Department website.
- Copies of final exams from previous years are available at <http://math.unc.edu/undergraduate/old-exams/>

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**Accommodations:** If there any special circumstances that will affect your performance in this class, please contact the staff at the Academic Success Program, 919-962-7227, so that we can work together to meet your needs.

**Disclaimer:** The instructor reserves the right to make changes to the syllabus, including due dates and test dates. Changes to ALEKS due dates can be found on the ALEKS site. Other changes will be announced in class or via Sakai or email.

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**TENTATIVE SCHEDULE OF INSTRUCTION**

<b>Week</b>	<b>Dates</b>	<b>Sections</b>	<b>Topics</b>	<b>Homework Due</b>
1	1/10 1/12	R.2, R.3, R.4 R.2, R.3, R.4	Introduction, Exponents and Radicals Exponents and Radicals	1/16
2	1/15 1/17 1/19	<i>No class</i> R.5, R.6 R.6	Factoring, Rational Expressions Rational Expressions	1/25 1/25
3	1/22 1/24 1/26	1.1, 1.4, 1.5, 1.6 1.1, 1.4, 1.5, 1.6 1.1, 1.4, 1.5, 1.6	Linear and Quadratic Equations Rational Equations Equations involving Radicals and Exponents	2/1 2/1
4	1/29 1/31 2/2	1.6 Review TEST 1	Absolute Value Equations	2/1
5	2/5 2/7 2/9	1.7 3.6 2.1, 2.2	Abs Value Inequalities, Compound Linear Inequalities Polynomial and Rational Inequalities Distance, midpoints, circles	2/8 2/8 2/15
6	2/12 2/14 2/16	2.4, 2.5 2.4, 2.5 2.3	Lines Parallel and Perpendicular Lines Functions	2/15 2/15 2/20
7	2/19 2/21 2/23	2.6 3.1 3.1	Transformations of Functions Quadratic Functions Quadratic Function Applications	2/20 3/1 3/1
8	2/26 2/28 3/2	3.2, 3.3 Review TEST 2	Polynomials	3/1
9	3/5 3/7 3/9	4.2 4.2, 4.6 4.2, 4.6	Exponential functions Applications of exponential functions Compound Interest and Continuous Growth	3/18 3/18 3/18
10	3/19 3/21 3/23	4.3, 4.4, 4.5 4.3, 4.4, 4.5 4.3, 4.4, 4.5	Logarithmic functions and graphs Properties of logs Solving Exponential Equations	4/3 4/3 4/3
11	3/26 3/28 3/30	4.3, 4.4, 4.5 4.3, 4.4, 4.5 <i>No class</i>	Solving Log Equations Doubling Time and Half Life	4/3 4/3
12	4/2 4/4 4/6	Review TEST 3 5.1, 5.4	Linear systems of equations	4/10
13	4/9 4/11 4/13	5.1, 5.4 3.5 3.5	Linear systems of equations, applications Rational functions Rational functions, continued	4/10 4/15 4/15
14	4/16 4/18 4/20	2.8 4.1 4.1	Combining and composing functions Inverse Functions Inverse Functions, continued	4/22 4/22 4/22
15	4/23 4/25 4/27		Additional topics: piecewise functions, even and odd Review Review	4/27
16	<b>5/3</b>	<b>FINAL</b>	<b>Thursday, May 3 from 4:00 – 7:00 pm</b>	

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ALEKS due dates are tentative. Actual due dates will be posted on ALEKS. Objectives will be due at midnight. Before class assignments will be due at the start of class on the day that the topic is first covered in class.