

UNCW MAT 111: College Algebra Fall 2015

INSTRUCTOR: Dr. Daniel X. Guo

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OFFICE HOURS: M, W, F: 10:50am – 11:50am, 1:50 – 2:50pm and by appointment

COURSE MATERIALS

Required:

1. MyMathLab computer access code (**Course ID guo85023**).
2. Graphing calculator (**TI-83, TI-84 recommended**).

Optional: (Text book) Algebra and Trigonometry: Enhanced with Graphing Utilities, **6th** Edition by Sullivan and Sullivan.

HOMEWORK: Homework assignments will be made **online** the same day for each section. It is expected that these assignments will be completed promptly and thoroughly. It is through the working of these problems that an understanding of the concepts and a mastery of the procedures are most successfully attained. Each assignment will be available only for a few days.

QUIZZES: Short quizzes based on the lectures and homework assignments will be given weekly after teaching three sections.

TESTS: Three tests plus a departmental comprehensive final exam will be given during the course. The tentative dates for the tests are **Friday September 18, Friday October 16, and Friday November 18** at the class meeting time and room. The makeup test will be given only in the case of emergency (with supporting documents). The final exam will be given at **Monday December 7, 7:00pm – 10:00pm**. The location will be announced later. Everyone must take the final exam and no makeup final exam for any reason. There are copies of past final exams for MAT 111 available online at www.uncw.edu/mathlab.

GRADING: The homework and quiz grades will collectively count 10% and 15% each, each of the three tests will count 15%, and the final exam will count 30% toward the final average. Grades will be assigned based on the final average using the following scale: 0.00-59.9 = F, 60.0-69.9 = D, 70.0-79.9 = C, 80.0-89.9 = B, 90.0-100.0 = A. Plus/minus grades might also be used at the discretion of the instructor.

POLICIES

1. **Attendances:** Regular and punctual attendance is expected and will be monitored. Excessive absences (more than two) will result in the denial of makeup test, additional office hours, and bonus points.
2. **Makeup:** No make-up test will be given unless illness or emergency. Instructor must be notified in advance or on the test day. Make-up test will be given on the

earliest available date. No late homework. No makeup for the final exam for any reason.

3. **Academic Honor Code and Seahawk Respect Compact:** Please refer to Section V in your student handbook and Dean of Students' website (<http://www.uncw.edu/stuaff/doso/>) about Academic Honor Code for the definition and procedures about academic dishonesty offenses. The Seahawk Respect Compact (<http://www.uncw.edu/diversity/src.html>) expresses the core values essential to an open, respectful learning and working environment.
4. **Disability:** UNCW Disability Services supplies information about disability law, documentation procedures and accommodations that can be found at <http://www.uncw.edu/stuaff/disability/>. To obtain accommodations the student should first contact Disability Services and present their documentation to the coordinator for review and verification.
5. **Religious Observance Policy**
In accordance with NC SL 2010-211, you are entitled to two excused absences for religious observances **per academic year**. You must inform me in writing the first week of class if you will be missing any classes due to religious observance and using one of the two permissible absences for the academic year. In addition, please inform the Registrar the first week of class who will then confirm your intentions to miss class with the impacted course instructors. Any absence for religious purposes will be considered unexcused unless you submit the request in writing the first week to either me or the Registrar.
6. **The UNCW Statement on Diversity in the University Community**
As an institution of higher learning, the University of North Carolina Wilmington represents a rich diversity of human beings among its faculty, staff, and students and is committed to maintaining a campus environment that values that diversity. Accordingly, the university supports policies, curricula, and co-curricular activities that encourage understanding of and appreciation for all members of its community and will not tolerate any harassment or disrespect for persons because of race, gender, age, color, national origin, ethnicity, creed, religion, disability, sexual orientation, political affiliation, marital status, or relationship to other university constituents.
7. **Zero Tolerance Policy**
UNCW practices a zero tolerance policy for violence and harassment of any kind. For emergencies contact UNCW CARE at 962-2273; Campus Police at 962-3184; or Wilmington Police at 911. For University or community resources visit: <http://www.uncw.edu/safe-relate/campusResources.htm>. Violence prevention information and resources available at <http://www.uncw.edu/safe%2Drelate/>. We will focus several class discussions on the importance of reducing violence and increasing tolerance in schools and at UNCW.

8. Cell Phones, PDAs, Laptops

Please silence your cell phone and do not make calls, access applications or text during class. If you have a personal, urgent matter for which you need to be on call, please let me know in advance. In addition, please do not have active any PDAs or laptops/netbooks/iPads open and active unless the activity warrants. We will use these devices in selected activities and they are permissible then.

GOALS FOR MAT 111: MAT 111 is primarily a service course for other departments which require it as part of their programs. Some of the departments that require MAT 111 for at least some of their courses include: Biology, Business, Chemistry, Earth Sciences, Physics, Psychology, and Nursing. Some of the most frequently mentioned topics were: use of exponents and radicals, linear equations (including finding a linear equation from given data), inequalities, quadratic equations, graphing functions, interpreting graphs, exponential functions, logarithms, and systems of equations. The following is a list of what should be learned in MAT 111.

1. Solve equations: linear, quadratic, radical, factorable polynomial, rational, exponential, and logarithmic.
2. Solve inequalities: linear, factorable polynomial, rational, absolute value.
3. Understand basic functions and their graphs: linear, quadratic, polynomial, rational, exponential, and logarithmic.
4. Learn how to think—problem solving—applications of each of the types of equations, inequalities, and functions listed in 1-3 above. Use this to help motivate the students as well as to provide connections to other fields of study. Also, use this relevance of functions to other areas to improve student attitude toward mathematics.
5. Learn some modeling and graphical interpretations—important in many applications relating mathematics to other fields of study.
6. Integrate the graphing calculator in all of the above course content in order to provide another way to learn the concepts and also to apply them to various fields of study.

Course Student Learning Outcomes: Upon completing MAT 111, students should be able to:

- find and use graphical, numerical, analytical and verbal representations of functions and their inverses. (MS 1; QRE 1)
- understand the meaning and use of polynomial, rational, exponential, and logarithmic functions. (MS 1 & 2; QRE 1 & 2)
- solve equations, inequalities and systems of equations. (MS 1; QRE 1 & 2)
- use correct mathematical syntax to explain solutions in both written and graphic forms. (MS 3; QRE 3)
- model a variety of applications using the concepts of algebra. (MS 2 & 3; QRE 1, 2 & 3)
- use technology to help solve problems, interpret results, and verify and communicate conclusions. (MS 1 & 2 & 3; QRE 1 & 2)
- determine the reasonableness of solutions, including sign, size, relative accuracy, and units of measurement. (MS 2 & 3; QRE 1, 2 & 3)

Date	Sections	Problems
8/19	1.1: Rectangular Coordinates; Graphing Utilities; Introduction to Graphing Equations	
	1.2: Solving Linear and Rational Equations	
8/24	1.3: Quadratic Equations	
	1.4: Complex Numbers; Quadratic Equations	
	1.5: Radical Equations; Equations Quadratic in Form; Absolute Value and Factorable Equations	
8/31	1.6: Problem Solving: Interest, Mixture, Uniform Motion, Constant Rate Jobs	
	1.7: Solving Inequalities	
9/9	2.1: Intercepts; Symmetry; Graphing Key Equations	
	2.2: Lines	
9/14	12.1: Systems of Linear Equations: Sub. and Eli.	
9/16	Review	
9/18	Test 1	
9/21	3.1: Functions	
	3.2: The Graph of a Function	
	3.3: Properties of Functions	
9/28	3.4: Library of Functions; Piecewise-defined Functions	
	3.5: Graphing Techniques: Transformations	
10/5	4.1: Linear Functions, Their Properties, and Linear Models	
	4.2: Building Linear Models from Data	
	4.3: Quadratic Functions and Their Properties	
10/12	4.4: Building Quadratic Models from Verbal Descriptions and from Data	
10/14	Review	
10/16	Test 2	

10/19	5.1: Polynomial Functions and Models	
	5.4: Properties of Rational Functions	
	5.5: The Graph of a Rational Functions	
10/26	4.5: Inequalities Involving Quadratic Functions	
	5.6: Polynomial and Rational Inequalities	
	6.1: Composite Functions	
11/2	6.2: One-to-One Functions; Inverse Functions	
	6.3: Exponential Functions	
	6.4: Logarithmic Functions	
11/9	6.5: Properties of Logarithms	
	6.6: Logarithmic and Exponential Equations	
11/16	Review	
11/18	Test 3	
11/20	6.7: Financial Models	
	6.8: Exponential Growth and Decay Models	
	6.9: Building Exponential, Logarithmic, and Logistic Models from Data	
12/2	Review	
12/7	Final Exam	Monday, 7:00pm – 10:00pm