

Northern Michigan University
Mathematics and Computer Science Department
MA111-02 (10933) College Algebra (4 credits)
MTWR 10:00 – 10:50, Jamrich 3317

Instructor: Dr. Carol Bell

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Office Hours: MWR 11:00-1:00 or by appointment (email me)

Prerequisite: MA 100 ("C-" or better) or appropriate math placement.

Course Description (from NMU Bulletin): The study of quadratic and higher degree polynomials and rational expressions, exponential and logarithmic equations and functions. Emphasis on exponential and logarithmic functions.

- [Applies toward the quantitative reasoning and analysis \(quar\) general education requirement.](#)
- [Applies toward the mathematics competency university requirement \(math\) general education requirement.](#)

Text and Other Course Information:

You will need the following for the course.

- **Text:** Algebra & Trig, by Ron Larson, 11th edition, Cengage Learning. Hard copy or etext, but be sure you get the online homework package (WebAssign). You may purchase through the NMU bookstore or on the publisher's website.
- A non-CAS graphing calculator (one that does not do algebra)

We will be using WebAssign for the online homework. Create your account on or before the first day of class. Watch the video to help in getting enrolled our WebAssign course:

<https://startstrong.cengage.com/webassign-not-integrated-ia-no/>.

The course key is: **nmu 0216 1419**

Classroom Rules:

- If you have questions during class, please ask.
- No cell phones on desks. Please make sure they are set to vibrate so there are no disruptions during class.
- If you need to use the restroom or leave for another reason, then do so.
- **If you feel sick, stay home! Please email me to let me know you will miss class.**

Learning Outcomes:

Upon successful completion of this course, the student will be able to:

1. Perform operations with functions, including composition of functions.
2. Determine the inverse relation for a given function and sketch both the function and its inverse map.

3. Solve quadratic equations by factoring, square root method, completing the square, and quadratic formula.
 4. Perform polynomial long division and synthetic division
 5. Solving equations involving rational expressions, degree 1 and higher.
 6. Graph and determine the domain and range of a relation or function given its equation and/or graph (circles, quadratic, higher degree polynomials, rational, radical, exponential, logarithmic).
 - a. Determine the center and radius of a circle from its equation and construct the equation of a circle from its graph
 - b. Sketch of the graph of a polynomial function of degree three or larger given its factored form
 - c. Determine horizontal and vertical asymptotes of a rational function, and use that information to graph
 - d. Graph exponential and logarithmic functions and state asymptotes
 7. Apply transformations to graphs of equations and to functions.
 8. Use the following theorems (over the complex numbers): Remainder, Factor, Fundamental Theorem of Algebra, Rational Roots (with synthetic division), and Conjugate Roots to solve polynomial equations.
 9. Convert equations between exponential and to logarithmic forms.
 10. Apply the rules of logarithms involving logarithms of products, quotients, powers, and change of base.
 11. Solve logarithmic and exponential equations, emphasis on using natural log and e .
 12. Solve applied problems such as applications of polynomial, rational, radical, exponential and logarithmic functions.
 13. Solve systems of equations including linear and nonlinear systems.
- Evaluation of these learning outcomes done through assignments and tests.

Assessment Format: Specific information on each assessment is below.

There are prerequisite problems in the Web Assign, the online homework system. Please complete the problems as soon as possible so you know if this course is right for you.

- **Online Homework (15%):** Each chapter has several online homework assignments in Web Assign. You should read the text section prior to attempting the homework. You may redo any of the online homework assignments until the due date. Each online homework assignment is 15 points. The due dates on the calendar and noted in WebAssign are the last date you may submit that online homework assignment, but do not wait until the due date to complete it. If you request an extension, a 20% penalty is applied to your assignment. Please note that there are worked examples and videos in WebAssign, and additional resources in EduCat to help you with the homework.
- **Written Homework (15%):** Written homework assignments consist of questions from each chapter/unit. Go to EduCat to access the assignment. You are welcome to have me look over your written homework before you submit it for a grade. Just ask! You can email your work to me or stop by the office to have me review it before you submit it for grading, but please do not ask on the day it is due or too late at night.

Each written homework assignment is 10 points. You can earn partial credit only when you show all your work. Your lowest homework score is dropped. Written homework submitted after class on the due date is penalized 20% and those submitted the next day are penalized 50%. You may not submit written work after solutions are posted in EduCat.

- **Tests (50%):** There are five unit-tests. Each test is 50 points. *Make-up tests are not given.* If you miss a test, you will receive a score of 0. Your lowest test score will be replaced by half your raw score on the final exam as long as half your final exam score exceeds your lowest test score. So, a test score of 0 will be replaced by half your final exam (raw) score.
- **Final Exam (20%):** The final exam is cumulative and is worth 100 points. Please see the final exam schedule for the date and time.

Is there extra credit in the class?

YES! I will add a percentage to your final course percentage at the end of the term. You may earn extra credit in the following ways.

- 1) Complete the final exam problems in WebAssign (parts 1 and 2). (up to 1%)
- 2) Complete the Final Exam Practice Test in EduCat. (up to 0.5%)
- 3) Complete the course evaluation at the end of the semester. At least 90% of the class must complete it in order to receive the extra credit. (0.5%)

Grading Scale (%): Your course grade will be weighted according to the percentages outlined under Assessment Format. Corresponding grades are below.

100 – 93.0: A	86.4 – 82.5: B	76.4 – 72.5: C	66.4 – 62.5: D
92.9 – 89.5: A-	82.4 – 79.5: B-	72.4 – 69.5: C-	62.4 – 59.5: D-
89.4 – 86.5: B+	79.4 – 76.5: C+	69.4 – 66.5: D+	59.4 – 0: F

How do I get help in the class?

- 1) Come to my office hours or email me to set up an appointment.
- 2) Use the “Ask your instructor” feature in WebAssign to ask about the questions you missed. I will receive an email when you use this feature and then I will go into WebAssign to look at your question. Please allow 24 hours for a response.
- 3) Go to the mathematics tutoring lab (Jamrich 2100); M-F 9:00 am – 6:00 pm.
- 4) Go to All Campus Tutoring (generally available on the weekends). Check their walk-in tutoring schedule at <https://www.nmu.edu/tutoring/>.

Email Etiquette Tips:

Did you know NMU provides email etiquette tips at <https://www.nmu.edu/etrpc/email-etiquette>? Please be respectful in all your correspondence with me or other students.

This includes email, postings made on Discussion Forums, or any other forms of communication. **Please tell me what class you are in when you email me.** Additional

information about NMU's expectations, acceptable standards of behavior, and procedures are in the Student Handbook at <https://www.nmu.edu/dso/studenthandbook>.

Good Email Example:

Hi Dr. Bell,

I am in your 10:00am MA111 class. I have a question on solving radical equations. Are you available to meet on Wednesday between the hours of 3:00 pm and 5:00 pm? Thank you.

Your Name

NMU's Non-Discrimination Statement:

Northern Michigan University does not unlawfully discriminate on the basis of race, color, religion, sex, national origin, age, height, weight, marital status, familial status, handicap/disability, sexual orientation, or veteran status in employment or the provision of services, and provides, upon request, reasonable accommodation including auxiliary aids and services necessary to afford individuals with disabilities an equal opportunity to participate in all programs and activities.

Anyone having civil rights inquiries may contact the Equal Opportunity Office, 502 Cohodas Hall, telephone number 906-227-2420.

Disability Services:

If you have a need for disability-related accommodations or services, please inform the Coordinator of Disability Services in the Dean of Students Office at 2001 C. B. Hedgcock Building (227-1737 or disserv@nmu.edu). Reasonable and effective accommodations and services will be provided to students if requests are made in a timely manner, with appropriate documentation, in accordance with federal, state, and University guidelines.