

Northern Michigan University
Mathematics and Computer Science Department
MA111 College Algebra with Calculus Preparation
Winter 2019 (4 credits)
MA111-02 (10608) MWRF 10:00 – 10:50, JXJ 3100

Instructor: Dr. Carol Bell

Office Phone: (906) 227-1603

Office Hours: MWRF 11:00 – 12:00, or by appointment

Office: JXJ 2212

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Prerequisite:

MA100 (passed with a B- or better) or satisfactory score on the Mathematics Placement Exam.

Course Description: This course involves the continued development of students' abilities to manipulate algebraic statements and solve problems. A study of functions, graphing, equation solving techniques, exponents and logarithms, and systems of equations. Topics, applications and pace are tailored for those students intending to take calculus.

This course satisfies the Foundation of Natural sciences/Mathematics requirement. Students who complete this course should be able to demonstrate a basic understanding of mathematical logic; use mathematics to solve scientific or mathematical problems in college classes; express relationships in the symbolic language of mathematics; and appreciate the role of mathematics in analyzing natural phenomena.

Text and Other Course Information:

We will be using McGraw Hill's www.connectmath.com for the online homework. The course code is **DTVRF-J6NVM**.

- **Text:** College Algebra, by Coburn and Coffelt, 3rd edition. You may purchase through the NMU bookstore or on the publisher's website. Be sure you purchase the online homework package.
- A non-CAS graphing calculator.

Learning Outcomes:

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

- Recognize and avoid common algebra mistakes.
- Determine parallel and perpendicular lines, including vertical and horizontal lines.
- Determine the domain and range of a relation or function given its equation and/or graph.
- Graph the functions, which yield the parabola, the absolute value, the cubic, the square root, the cube root, and ones defined piecewise; solve linear and radical equations, and absolute value equalities and inequalities.
- Graph a parabola given by a quadratic function and determine the center and radius of a circle from its equation.
- Give a rough sketch of the graph of a polynomial function of degree three or larger given its factored form.

- Determine the domain and range as well as the horizontal and vertical asymptotes of a rational function, and use that information to graph it; also be able to solve rational equations.
- 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.
- Graph exponential and logarithmic functions.
- Convert equations back and forth from exponential to logarithmic form.
- Apply the rules of logarithms involving logarithms of products, quotients, powers, and change of base and solve logarithmic functions.
- Solve exponential equations, which do have the same base on both sides and ones that do not have the same base on both sides of the equation by using logarithms.
- Solve systems of linear equations using substitution and addition (elimination) with two and three variables and determine the consistency and dependency.

Evaluation of these learning outcomes will be done through assignments and exams.

Classroom Laptop and Cell Phone Use:

Refrain from using your laptop for instant messaging, e-mailing, surfing the Internet, playing games, writing papers, doing homework, etc. during class time. Acceptable uses of your laptop include taking notes and working on assigned in-class activities, projects, and discussions that may be enhanced by laptop use. It is easy for your laptop to become a distraction to you and to those around you, including me, so please use it for classroom activities only. Cell phones may not be used during class time.

Assessment Format: Specific information on each assessment is below.

- **Online Homework (10%):** Each chapter has several online homework assignments. You may redo any of the online homework assignments until the due date.
- **Written Homework (10%):** I will collect written homework on a regular basis. Keeping up with the homework assignments is essential to learning Mathematics. No one is able to learn mathematics without working problems. You should expect to spend 8 – 12 hours a week working homework problems, reading the text, and going over your class notes. I encourage you to work together in groups.
- **Tests (60%):** A comprehensive end-of-chapter test is given after completing each full chapter or combined chapters (for material that is not based on a single chapter). A university-approved excuse is required for rescheduling any exam. Make-up tests are not given so failure to notify me of your absence prior to the test will result in a score of 0. Your lowest test score will be replaced by half your raw score on the final exam. Students with disabilities should work with Disability Services to arrange for taking tests.
- **Final Exam (20%):** The final exam is comprehensive. The final exam date and time are Tuesday, April 30, 10:00 – 11:50am.

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

100 – 95.0: A	86.4 – 82.5: B	76.4 – 72.5: C	66.4 – 62.5: D
94.9 – 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

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 (227-1700 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.

EXTRA HELP:

- My office: during regular office hours or by appointments.
- Mathematics Tutor Lab: West Science 3810, M – F 9:00 am – 6:00 pm.
- All Campus Tutoring: LRC 111H. See available days and times at <https://www.nmu.edu/tutoring/all-campus-tutoring>

Important Deadlines

Type of Course	Last Day to Add a Class	Last Day to Drop for a 100% Refund and No Grade	Last Day to Drop a Course with a "W" Grade
Full Semester	Thursday, January 17 by 5 p.m.*	Tuesday, January 22 by 5 p.m.	Friday, March 29 by 5 p.m.
First Block	Tuesday, January 15 by 5 p.m.*	Friday, January 18 by 5 p.m.	Friday, February 15 by 5 p.m.
Second Block	Tuesday, March 12 by 5 p.m.*	Friday, March 15 by 5 p.m.	Friday, April 12 by 5 p.m.