# Northern Michigan University - Winter 2018
# MA 104 –College Algebra and Trigonometry with Applications

## Section 04 - 12273
## Mon. and Weds. 4:00 p.m.

## Section 03 - 10703
## Mon. and Weds. 6:00 p.m.

## 3319 Jamrich Hall


**Instructor:** **Pat Jennings**
**Office:** *by arrangement*
**Phone:** **228-2808 (leave message)**
**Email:** **pjenning@nmu.edu**
Note: the best way to contact me is by email. Be sure to leave your phone number so that I can call you back


**Office Hours:** **Mon Weds 5:40 to 6:00** and **7:40** to **8:00** (In the classroom)
Other times by appointment

**Course Content:** This course is designed for students who need college algebra but do not intend to take calculus. The applications of algebra are stressed; mathematical topics are chosen primarily on the basis of their immediate applicability. Such applications are drawn mainly from the natural sciences and technologies. This course will prepare students to study Trigonometry, MA 106, and Calculus with Applications, MA 271. And although MA 103 is the recommended preparatory course for the study of statistics, MA 104 is as an alternative prerequisite for Statistics. To move to the precalculus track (MA115) from MA104, a student must achieve at least a B- in this course.

This course satisfies the Foundation of Natural Science/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:** *College Algebra and Trigonometry with Applications*, 6th Edition, Levitan, Kolman, Shapiro, Bell. BVT Publishing (2014).
ISBN 9781627516532 (Textbook+ Bundle, which includes a loose-leaf black & white textbook plus a Product Key for online access) **OR**
ISBN 9781627516525 (eBook+, which includes an eBook plus a Product Key for online access)

**Online Material:**

Online course materials may be accessed at http://www.bvtlab.com.
**The online material is optional for this course and is only available if you purchased the online version of the text.**
When you initially enter the lab, you must enter the product key from the back of your text and the course code which is:

4:00 class: **B45302**
6:00 class: **770AE5**

Temporary access to the course materials are available for a 14-day trial period. Below are the instructions for the temporary eBook+ Access.
If you do not already have a BVTLab account then please visit http://www.bvtlab.com and enter **K2117529** into the Product Key field. Click the "Redeem a Product Key" button and complete the account creation process.
Upon completion of the account creation process you will be automatically logged on. You will then find that you have access to your online resources. After the 14 day trial period expires, you will no longer have access to the online resources unless you enter the product key from the back of your text.

For more information, go to
http://bvtpublishing.freshdesk.com/support/solutions/folders/4000005239

**Calculator:**

A graphing calculator is required for this course, such as TI-83 or TI-84 and are available at the bookstore.

**Tutoring:**

There is *Math Lab* that will be available for tutoring. I will email you the schedule after the semester starts. The math lab will likely be in West Science.

**Computer:**

An NMU email account is required. Note that, if you use the NMU web based email, your old messages are deleted periodically. I will be sending you emails periodically throughout the semester so you are responsible for reading your email in a timely manner and saving any important information, such as test answer keys.
I recommend that you set up a folder on your laptop for this class and save all of the material that I email you in this folder

**Prerequisites:**

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

**Deadlines:**

Last day to drop with 100% refund (No grade): **Tuesday, Jan 22**
Last day to drop with "W" grade: **Friday, Mar 29**

**Grading:**

Grades will be weighted according to the following:

| | |
|---|---|
| Chapter Tests | 70% |
| Quizzes | 10% |
| Final Exam | 20% |

The final grade will be a weighted average of the above corresponding to the following scale:

| | |
|---|---|
| A | 93 – 100 |
| A- | 90 – 92.9 |
| B+ | 87 – 89.9 |
| B | 83 – 86.9 |
| B- | 80 – 82.9 |
| C+ | 77 – 79.9 |
| C | 73 – 76.9 |
| C- | 70 – 72.9 |
| D+ | 67 – 69.9 |
| D | 60 – 66.9 |
| F | less than 60 |

There will be no other grades given. Incompletes will be pursuant to University policy.

The final exam for the 4:00 pm class is scheduled for **Monday, April 29, 2019** at **4:00 pm.** The final exam for the 6:00 pm class is scheduled for **Monday, December April 29, 2019** at **6:00 pm.**
***You must take the final exam during the period that you are registered for unless you make other arrangements with your instructor.***

**Chapter Tests:** All chapter tests will be given during class and you will have an hour to take each test. There will be a minimum of 4 chapter tests, but there may be more, depending on how the class goes. If it turns out that there are more than 4 tests, I will drop the lowest test score.

All chapter tests will be closed book and closed notes, unless I indicate in class otherwise. You may use your calculator, but no other resources.

**Quizzes:** Quizzes will be given once or twice a week, unannounced, usually spontaneous, and cannot be made up under any circumstances. The easiest way to pass a quiz is to show up in class. If you miss only one or two quizzes, it will not significantly affect your grade, but, missing most of them will. You are encouraged to work with your classmates on the quizzes and I will come around and help you.

**Homework:** You should work out a substantial number of exercises from the text that pertain to the sections that we are going over. I recommend going through the odd numbers exercises from the section that we have just

gone over in class. If you have a question about a particular exercise and want me to work it out in class, please email me beforehand.

**Study Habits** As a general rule, you should spend two hours on homework for every hour that you are in class. (This applies for all courses that you take in college) Since this is a 4 credit hour course, you should spend at least 8 hours per week on reading and homework assignments. If you have had an especially hard time with mathematics in the past, plan on spending at least 12 hours per week for this course.

Budget your time wisely! There is nothing worse than cramming for a test on Friday night when your friends are out having a good time. I recommend that you set a schedule for this course (as well as your other courses) and stick to it. Plan your schedule now.

**Attendance:** Other than the quiz grades, I will not be taking attendance for this course. Since you are making a financial investment in this course, it is to your advantage to put your best effort into learning the material that is presented by attending class regularly, keeping up with the homework, and asking for help if you do not understand something. If you are not able to attend class due to work commitments, child care, or some other reason, let me know and we can work out some reasonable arrangement.

**Academic Honesty:** You must do all of your own work. If you cheat, you will not learn the material, and if you get away with passing this course by cheating, you will have a very difficult and frustrating time in your later courses. Also, you will be constantly looking over your shoulder worried about getting caught, and that, in itself is not worth it. If you do get caught cheating on a test or other assignment, you will get an automatic **F** for this course, and you could be subject to other sanctions. This includes having someone else take your online test or plagiarizing the project assignment. The bottom line is, if you cheat, you are really cheating yourself out of time, money, and, possibly, your future career.

**Disabilities:** 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). 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.

**Veteran Services:** If you are a veteran and need assistance with your benefits or are experiencing complications with your education due to military service connected issues, contact the Veteran Resource Representative in 2101

Hedgcock (227-1402 or mrutledg@nmu.edu). The Veteran Resource Representative can advocate for you before the Veterans Administration and can also help you solve any veteran specific issues you may have.

**Course Objectives:**

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

- Identify, graph, and analyze quadratic and polynomial functions.
- Identify, graph, and analyze rational functions.
- Identify, graph, and analyze exponential functions.
- Identify, graph, and analyze logarithmic functions.
- Describe and perform transformations of basic functions
- Determine the inverse of a function
- Perform operations with functions including composite functions
- Solve quadratic and polynomial equations.
- Solve rational equations.
- Solve radical equations
- Solve absolute value equations
- Solve exponential equations.
- Solve logarithmic equations.
- Solve systems of equations with two and three variables.
- Solve systems of non-linear equations
- Solve inequalities and systems of inequalities.
- Apply elementary trigonometry to solve problems involving right triangle relationships.
- Utilize law of sines and law of cosines to solve oblique triangles
- Select and apply appropriate mathematical models to describe real-world problems.

Assessment of these course objectives will be through chapter tests, quizzes and the final exam

**Course Content**

(The numbers below do not necessarily correspond to the chapters in the textbook)

1. Review of Algebra
   - Polynomials and operations on polynomials
   - Solving linear and quadratic equations
   - Integral and rational exponents and radicals
   - Fractional expressions
   - The coordinate plane and graphing
2. Learning to Use the Calculator
   - To draw graphs and to solve equations and systems of equations
3. The Function Concept
   - Functional notation and graphs of functions
4. The Study of Special Functions
   - Linear, quadratic, polynomial, and rational functions
   - Functions involving radicals
5. Solving Equations
   - Algebraic and graphical methods
   - Solving literal equations
6. Exponents and Logarithms
   - Properties of the exponential and logarithmic functions
   - Solving exponential and logarithmic equations
   - Applications of the exponential and logarithmic functions
7. Systems of Equations
   - Linear systems: solving algebraically, graphically
   - Solving special non-linear systems
8. Other Topics
   - Introduction to probability
   - Introduction to right triangle trigonometry

*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, or call (906) 227-2420.