Northern Michigan University
Mathematics and Computer Science Department
College Algebra and Trigonometry with Applications in Science and Technology
MA104-50 (11725) Web-based (4 credits)
Winter 2019

Instructor: Dr. Carol Bell   **Office:** JXJ 2212
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I am available to meet with you in my office or via video conferencing (Zoom). Just email me to set up an appointment. You can also get help in the Math/CS Tutoring Lab located in WS 3810. I will post in EduCat a schedule of hours and list of tutors once it is available. For additional information on Tutoring Centers on campus, go to https://www.nmu.edu/tutoring/tutoring-centers.

Prerequisite:
MA100 (passed with a C- or better) or satisfactory score on the Mathematics Placement Exam. A graphing calculator or equivalent computer software is required.

Course Description: (from NMU Bulletin)
Continued development of students' abilities to manipulate mathematical statements and solve problems. A study of functions, graphing, equation solving techniques, exponents and logarithms, systems of equations, and elementary trigonometry. Emphasis is on applications in the applied sciences.

- Applies toward the quantitative reasoning and analysis (QUAR) general education requirement.
- Applies toward the mathematics competency university requirement (math) general education requirement.

General Introduction and Goals:
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.

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, MA106, and Calculus with Applications, MA271. And, although MA103 is the recommended preparatory course for the study of statistics, MA104 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.

Text and Other Course Information:
- Required: <u>College Algebra and Trigonometry with Applications</u>, 6th Edition, Levitan, Kolman, Shapiro, Bell. BVT Publishing (2011). ISBN 9781627516532 (Textbook +). Either the hard copy or online text may be purchased. Both come with online access to the course materials.
- Access online course materials at http://www.bvtlab.com. The course code is **48BB8C**. You will need this code along with the product key (located in the back of the book cover) when you set up your account to access the course materials.
  Note – if you are repeating the course, you must purchase a new product key.
- Required: A non-CAS graphing calculator for the tests (CAS means computer algebra system, which may not be used in this course). You may access an online graphing utility, such as the one provided at Desmos at https://www.desmos.com/calculator throughout the course, but you may not use it on the tests.

Below are the eBook+ Access Instructions.
- If you do not already have a product key, then please visit http://www.bvtlab.com to obtain a product key and enter it 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.
- Please visit http://bvtpublishing.freshdesk.com/support/solutions/folders/4000005239 to access the video help library for more information.

Required Technical Skills:
This online course uses both EduCat and publisher materials. There are minimal technical skills required of you to be successful in the course. You should be able to follow the directions provided by the publisher for setting up access to the text and online homework system. I recommend that you use Chrome, Firefox, or Safari to access the links in EduCat to various web sites with videos, practice problems, or other information for you to read, and when completing the knowledge check activities in the unit lessons. Please note that some of the resources may not have learner accessibility, such as a closed caption option on the videos so please let me know if you need an alternative means to access the course materials. Below is a list of technical skills you should have.
1) Log in to your EduCat account (https://educat.nmu.edu/) and access course materials provided in EduCat.
2) Use a scientific or non-CAS graphing calculator (one that does not do algebra).
3) Take photos of your written work or scan your written work.
4) Compress/zip a folder (directions provided under **Assessment Format**).
5) Use email with attachments.
6) Use Zoom or another video conferencing application.
   - You can download Zoom from https://support.zoom.us/hc/en-us/articles/201362233-Where-Do-I-Download-The-Latest-Version-.
7) Capture work on your screen using the PrtSc key or some program (only necessary if you have questions on work done on your screen that you need to send me).
   - Windows instruction video (https://www.youtube.com/watch?v=sPpYhwdYIes)
     o Note my PrtSc key is located in the lower right part of the keyboard.
   - Mac instructions (http://www.printscreenmac.com/)

Learning Outcomes (Course Learning Objectives):
Upon successful completion of this course, the student will be able to:
1. Identify, graph, and analyze quadratic and polynomial functions.
2. Identify, graph, and analyze rational functions.
3. Identify, graph, and analyze exponential functions.
4. Identify, graph, and analyze logarithmic functions.
5. Describe and perform transformations of basic functions
6. Determine the inverse of a function
7. Perform operations with functions including composite functions
8. Solve quadratic and polynomial equations.
9. Solve rational equations.
10. Solve radical equations
11. Solve absolute value equations
12. Solve exponential equations.
13. Solve logarithmic equations.
14. Solve systems of equations with two and three variables.
15. Solve systems of non-linear equations
16. Solve inequalities and systems of inequalities.
17. Apply elementary trigonometry to solve problems involving right triangle relationships.
18. Utilize law of sines and law of cosines to solve oblique triangles
19. Select and apply appropriate mathematical models to describe real-world problems.

Evaluation of these learning outcomes occurs through assignments and tests.

Assessment Format: Specific information on each assessment is below.
- **Online Homework (3%):** Each chapter has several online homework assignments in the BVT Lab covering one or two sections in the text. The online homework provides you with the opportunity to interact with the content of the course by testing your knowledge of concepts learned. Refer to text examples as well as the lessons in EduCat to aid in working the homework problems. Each online homework assignment consists of 20 multiple-choice questions. You may redo an assignment up to ten times to try to get the maximum score of 20 points. Be sure you are keeping a homework journal in which you are writing out solutions for the online homework in the BVT lab so you have a good reference for the written homework and tests.
- **Knowledge Check Activities (2%):** Knowledge Check Activities are in EduCat. You can access them either at the end of each unit lesson or via the last section labeled Knowledge Check Activities. These activities provide you with the opportunity to interact with the content of the course by testing your knowledge of concepts learned. Each activity is 10 points. You may redo them until the deadline.
- **Written Homework (5%):** Written homework assignments consist of questions from each chapter/unit. You may drop off your written work at the department office (Jamrich 2200) or upload it in EduCat. Please scan your work or take a photo, if submitted via EduCat. If you have more than one photo or document, please put them in a folder and submit a compressed (zipped) version of this folder to EduCat. Instructions for compressing a folder are below. 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 or stop by the office to have me review it before you submit it for

grading. 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. You may not submit written work after solutions are posted in EduCat. Late homework will be penalized 50%.

Receiving feedback on your written work is very important so please be sure your work is complete before submitting it for a grade. I will grade your written work and post scores in EduCat no later than two days after the deadline for submission.

DO NOT EMAIL ME YOUR WRITTEN WORK! If you are submitting work electronically, put your documents/photos in a folder, compress (zip) the folder, and upload it to EduCat. See instructions below.

> To compress (zip) a folder on a PC, do a right mouse click on the folder containing your documents, scroll down to Send to, and then select Compressed (zipped) folder. You can then upload this compressed folder to EduCat.

Note: If you are using a Mac, there is a tutorial for compressing folders at
https://www.bing.com/videos/search?q=how+do+you+compress+a+folder+on+a+mac&docid=60803151744493557&mid=474F94536AF01FC4BCC8474F94536AF01FC4BCC8&view=detail&FORM=VIREHT

- **Tests (90%):** You will take a comprehensive end-of-unit written test after completing each full chapter or combined chapters (for material that is not based on a single chapter). You must get an approved proctor or arrange with me to take the test in the office. There are six tests with each worth 50 points and you must get at least 60% on each test to pass the course (30/50). You may use a 3-inch by 5-inch index card with any information on each test and a non-CAS graphing calculator. A university-approved excuse is required for rescheduling any test. 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 in which case you must take that test during finals week. Students with disabilities should work with Disability Services to arrange for taking tests.

  There are practice tests in the BVT Lab for each unit. These are optional, but recommended as they provide an overview of each unit and more practice in working problems.

The Discussion Forums provided in EduCat allow you to post questions. Anyone can respond to the postings. Participation is optional and has no bearing on your grade.

Pretest

There is a required pretest in EduCat. The pretest consists of 20 questions (multiple-choice and short answer) from sections 1.1 – 1.7. The pretest is in EduCat and there is a time limit of one hour. You must take it on Friday, January 18, which is the first Friday of the semester. It tests your prerequisite skills to make sure you have the necessary skills to be successful in the course. If you do not perform well on the pretest, I will recommend that you move to MA100. Depending on your score on the pretest, you may earn extra credit. This is the only form of extra credit offered

throughout the semester. I will apply any extra credit to your grade at the end of the semester.

Requirements to pass the course:
- You need to have a passing grade for each of the six tests (60% or higher). **You must re-take any tests below 60%** (same concepts, but not the same questions) during finals week. You may retake up to two tests during the final exam time. If you do not retake any tests below 60%, you will receive a grade of F for the course.
- If you want to re-take a test even if you obtained a passing grade (60% or higher), you may do so during finals week. However, whatever grade you get for the second test will override the previous one.

Grading Scale (%): If all tests have scores 60% or higher, your course grade will be weighted according to the percentages outlined under Assessment Format and grades assigned according to the table 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

After retaking any tests during finals week, if you have more than two test scores below 60%, the highest grade you can receive is as follows, but you must earn the grade:
> 3 tests below 60% (D+)
> 4 tests below 60% (D)
> 5 tests below 60% (D-)
> 6 tests below 60% (F)

How much time should you spend each day on the class?
You should set aside 1 – 3 hours each day to learn the concepts and complete the assignments. Follow the calendar to keep up with the work. You should plan for one hour to read the section in the text and view the videos in the lessons in EduCat so you can see worked examples. You will then likely spend 1 – 2 hours completing the homework.

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.

ADA Statement:
If you have a need for disability-related accommodations or services, please inform the Coordinator of Disability Services in the Disability Services Office by: coming into the office at 2001 C. B. Hedgcock; calling 227-1700; or e-mailing 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.

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. 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 online MA104 class. I have attached HW3. Would you please review my work and let me know if it is correct? I am not sure I have enough work on problem 3, so I would appreciate your feedback. Thank you.

Student Name

Need Technical Support?
NMU IT Services – http://it.nmu.edu/helpdesk
NMU Help Desk Information

NMUHelpDesk	**HelpDesk Distribution Week Hours**		
Search			
Real-time chat	Mon - Wed	8 am - 5 pm	
Email Us	Thu & Fri	8 am - 6 pm	
(906) 227-2468	Sat	Closed	
helpdesk@nmu.edu	Sun	1 - 10 pm	
	Micro Repair Distribution Week Hours		
Located in LRC 116	Mon - Wed	8 am - 5 pm	
Across from Fieras	Thu & Fri	8 am - 6 pm	
	Sat	Closed	
	Sun	1 - 10 pm	

BVT Publishing Help Desk (with FAQs) –
http://bvtpublishing.freshdesk.com/support/solutions

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.