PRE-CALCULUS WITH TRIGONOMETRY
MTH 167-35Z
(Fourteen-Week Course)

INSTRUCTOR INFORMATION

Name: Dr. Pablo Chalmeta
Email: pchalmeta@nr.edu
Website: www.nr.edu/chalmeta
Office: Godbey 48, Mall 115A
Office Phone: (540) 674-3600, ext: 4266
Office Hours: https://www.nr.edu/chalmeta/schedule.html

ONLINE STUDENT RESPONSIBILITY:

- ☑ The recommended browser to use with the current version of Canvas is Mozilla Firefox or Google Chrome. Other browsers are inconsistent in their performance with Canvas. When taking tests or quizzes, use a wired connection.
- ☑ Check your VCCS email regularly and respond/keep in touch with your instructor.
- ☑ Students are responsible for addressing and overcoming any technology-related issues that are affecting their ability to participate or complete their college course work. If you are having problems meeting this requirement, please contact your instructor, your student services advisor, or the college's help desk.
- ☑ Please note that cell phones may be inadequate to manage and complete online assignments and are not recommended as students' primary device for course work.

The Student's Guide to Online Learning is available at https://www.nr.edu/online/pdf/studentguide.pdf.

REGULAR AND SUBSTANTIVE INTERACTION:

I will support your learning throughout the semester by communicating and collaborating with you on a regular basis. This communication may be in the form of participation in office hours, direct course instruction, response to questions, email messages, discussion board posts, announcements posted in Canvas, or providing content specific feedback on graded work.

COURSE DESCRIPTION

Description: Presents topics in power, polynomial, rational, exponential, and logarithmic functions, systems of equations, trigonometry, and trigonometric applications, including Law of Sines and Cosines, and an introduction to conics. This is a Passport and UCGS transfer course.

Credits:	5
Prerequisite:	Placement recommendation for MTH 167 and Algebra I, Algebra II, and Geometry or equivalent. (Credit will not be awarded for both MTH 161/MTH 162 and MTH 167.)
Submissions:	1 per lesson
Proctored Assessments:	6
Online Activities:	Required

COURSE MATERIALS

Textbooks: College Algebra. 3/e Corrected Edition July 2013 Stitz and Zeager.
Book available free: http://stitz-zeager.com/
Trigonometry by Pablo Chalmeta (available for free here:
http://www.nr.edu/chalmeta/trigonometry/Trigonometry_book.pdf)

Software: MyOpenMath Homework: https://www.myopenmath.com

Calculator: A scientific calculator is recommended. If you own a calculator, do not buy a new one. If you do not own a calculator, don't spend a lot of money on one. I recommend the TI-30X IIS calculator.

Note: NRCC assumes no liability for virus, loss of data, or damage to software or computer when a student downloads software for classes.

COURSE INFORMATION

Prepared By: Dr. Pablo Chalmeta **Approved By:** Dr. Sarah Tolbert-Hurysz

INTRODUCTION

This is an online course designed specifically for students whose learning styles are best served by providing instructional opportunities beyond the traditional classroom setting.

This course presents college algebra, matrices, algebraic, exponential, and logarithmic functions, conic sections, and Trigonometric functions.

COURSE OUTCOMES

At the conclusion of this course a student should be able to:

- Distinguish between relations and functions.
- Evaluate functions both numerically and algebraically.
- Determine the domain and range of functions in general, including root and rational functions.
- Perform arithmetic operations on functions, including the composition of functions and the difference quotient.
- Identify and graph linear, absolute value, quadratic, cubic, and square root functions and their transformations.
- Determine and verify inverses of one-to-one functions.
- Determine the general and standard forms of quadratic functions.
- Use formula and completing the square methods to determine the standard form of a quadratic function.
- Identify intercepts, vertex, and orientation of the parabola and use these to graph quadratic functions.
- Identify zeros (real-valued roots) and complex roots, and determine end behavior of higher order polynomials and graph the polynomial, and graph.
- Determine if a function demonstrates even or odd symmetry.
- Use the Fundamental Theorem of Algebra, Rational Root test, and Linear Factorization Theorem to factor polynomials and determine the zeros over the complex numbers.
- Identify intercepts, end behavior, and asymptotes of rational functions and graph.
- Solve polynomial and rational inequalities.
- Interpret the algebraic and graphical meaning of equality of functions ($f(x) = g(x)$) and inequality of functions ($f(x) > g(x)$)
- Decompose partial fractions of the form $P(x)/Q(x)$ where $Q(x)$ is a product of linear factors.
- Identify and graph exponential and logarithmic functions and their transformations.
- Use properties of logarithms to simplify and expand logarithmic expressions.
- Convert between exponential and logarithmic forms and demonstrate an understanding of the relationship between the two forms.
- Solve exponential and logarithmic equations using one-to-one and inverse properties.
- Solve application problems involving exponential and logarithmic functions.
- Solve three variable linear systems of equations using the Gaussian elimination method.
- Identify angles in standard form in both degree and radian format and convert from one to the other.
- Find the arc length.

- Find the value of trigonometric functions of common angles without a calculator using the unit circle and right triangle trigonometry.
- Use reference angles to evaluate trig functions.
- Find the value of trigonometric functions of angles using a calculator.
- Use fundamental trigonometric identities to simplify trigonometric expressions.
- Graph the six trigonometric functions using the amplitude, period, phase and vertical shifts.
- Use trig functions to model applications in the life and natural sciences.
- Use the fundamental, quotient, Pythagorean, co-function, and even/odd identities to verify trigonometric identities.
- Use the sum and difference, double angle, half-angle formulas to evaluate the exact values of trigonometric expressions.
- Determine exact values of expressions, including composite expressions, involving inverse trigonometric functions.
- Solve trigonometric equations over restricted and non-restricted domains.
- Solve right triangles and applications involving right triangles.
- Use the Law of Sines and Cosines to solve oblique triangles and applications.
- Apply concepts of trigonometry to extended topics such as plotting polar coordinates, converting rectangular and polar coordinates from one to the other, identifying vector magnitude and direction, or performing operations with vectors such as addition, scalar multiplication, component form, and dot product.
- Identify the conic sections of the form: $Ax^2 + By^2 + Dx + Ey + F = 0$.
- Write the equations of circles, parabolas, ellipses, and hyperbolas in standard form centered both at the origin and not at the origin.
- Identify essential characteristics unique to each conic
- Graph equations in conic sections, centered both at the origin and not at the origin.
- Solve applications involving conic sections

GENERAL EDUCATION STUDENT LEARNING OUTCOMES INCLUDED IN COURSE

General education at NRCC provides the educational foundation necessary to promote intellectual and personal development. Upon completing the associate degree, graduates will demonstrate competency in student learning outcomes in 1) civic engagement, 2) critical thinking, 3) professional readiness, 4) quantitative literacy, 5) scientific literacy, and 6) written communication.

This course includes the following general education student learning outcomes:

- Explain numerical information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words).
- Convert relevant information into various mathematical forms (e.g., equations, graphs, diagrams, tables, words).
- Accurately solve mathematical problems.

COURSE CONTENT

This course presents college algebra, matrices, algebraic, exponential and logarithmic functions, conic sections, and Trigonometric functions.

INSTRUCTIONAL PROCEDURES

The primary instruction for the course is done through online videos available in MyOpenMath and the textbook.

I have regularly scheduled in-person student hours that you can find here. Everyone's schedule is different and regular office hours rarely work for most students. I am happy to meet with you almost any time but you must contact me in advance. To make an appointment use this Calendly link I can meet on campus or over Zoom, whichever is better for you. The Zoom link will be in Canvas and MyOpenMath.

Students can contact their instructor through a variety of avenues: phone, voice mail, E-mail, mail, face-to-face during office hours, or by appointment.

General announcements for the course will occur on an as-needed basis. Updates to course information will be done through Canvas https://vccs.instructure.com/. MAKE SURE TO TURN ON YOUR NOTIFICATIONS.

GRADING/EVALUATION

Introductory Assignments: There will be a series of introductory assignments that will collectively count for 2% of your final grade.

1. The introductory quiz tests your knowledge of course policies and procedures. This can be taken anywhere. I encourage you to use the syllabus, course plan and introductory video to answer the questions.
2. The introductory email sets up email communication between us.
3. The "Entering Answers in MOM" homework introduces you to the software.
4. The introductory discussion post demonstrates your ability to ask or answer questions in that environment.

Failure to complete these introductory assignments in the first 10 days of class will result in you being withdrawn from the course for non-participation under the Instructor Initiated Withdrawal policy.

Homework: Giving your best effort on homework is the single best thing you can do to help your mathematics. As such, the homework submitted through the MyOpenMath software will count for a significant portion of the grade (18%). The homework is due weekly. There is no penalty for working on the homework late with a late pass. There are additional homework problems in the textbook that are not collected for a grade but you are still responsible for knowing how to complete them. The Tutoring Connection on the main campus also has qualified tutors who can work with you on a regular basis.

Tests:
There will be five (5) tests for this course.

1. The test must be taken in a proctored environment. Students who meet the locality requirements will test at the campus testing center. Those who don't may request the use of an external proctor. Diane Viers handles such requests and this must be coordinated in advance.
2. You will have 120 minutes to complete each test.
3. The tests are closed-book / closed-note. Only instructor-issued formula sheets may be used. Scientific calculators are permitted, graphing calculators are not.
4. **There will be no make-up tests**. The test is due on or before the due date. If you cannot take the test on the due date you must take it early.
5. Tests may be taken early.

6. *The average on all tests will count as 60% of the course grade.*

Final Exam. There will be one comprehensive final due by the first day of finals week. The final exam must be taken in a proctored environment. The score on the final will replace the lowest test score (including any missed test) if that will improve your final average. *The final will count as at least 20% of the course grade.*

Calculator: A scientific calculator is recommended. If you own a calculator do not buy a new one. If you do not own a calculator don't spend a lot of money on one. I recommend the TI-30X IIS calculator.

The final grade for the course will be determined as follows:

Description	Percentage
Tests (5)	60%
Introductory Assignments	2%
Homework	18%
Final Exam	20%
Total:	**100%**

Grade	Final Average
A	90-100
B	80-89
C	70-79
D	60-69
F	<60

NOTES on grading and tests:

- Keep in mind that you might hit a trouble spot somewhere, so you should MOVE AS FAST AS YOU COMFORTABLY CAN, BUT AS SLOWLY AS YOU NEED, in order to meet the deadlines for the tests. The tests **MUST** be taken on or before the scheduled dates; however, you are encouraged to "work ahead."
- I do not curve grades. I do not "give" grades. You earn what you get, so plan to work accordingly.

EMAIL POLICY

When you send me an e-mail, always use your NRCC issued email address. Be sure that your email client includes your name in the header. You should always include a **descriptive** subject line that includes the course number. Please remember to use complete sentences and follow the rules of grammar. The Purdue OWL website (click) has excellent information about creating a professional email. I communicate through email to your NRCC issued address. I WILL NOT be replying to email that does not conform to these requirements. I do reply to email within 24 hours during the week. Weekends may be longer. If your email goes unanswered, please re-send or call. Sometimes emails get buried. Non-response is unintentional.

WITHDRAWAL POLICY

Student Initiated Withdrawal Policy
A student may drop or withdraw from a class without academic penalty during the first 60 percent of a session. For purposes of enrollment reporting, the following procedures apply:

a) If a student withdraws from a class prior to the termination of the add/drop period for the session, the student will be removed from the class roll and no grade will be awarded.

b) After the add/drop period, but prior to completion of 60 percent of a session, a student who withdraws from a class will be assigned a grade of "W."
c) After that time, if a student withdraws from a class, a grade of "F" or U" will be assigned. Exceptions to this policy may be made under documented mitigating circumstances if the student was passing the course at the last date of attendance. The last date of attendance for an online course will be the last date that work was submitted.

A grade of withdrawal implies that the student was making satisfactory progress in the course at the time of withdrawal, or that the withdrawal was officially made before the deadline date published in the college calendar, or that the student was administratively transferred to a different program.

Students requesting a late withdrawal due to documented mitigating circumstances should contact the Coordinator of Admissions and Records.

No-Show Policy

A student must either attend face-to-face courses or demonstrate participation in online courses by the last date to drop for a refund. Course attendance requires the student's active participation in an instructional activity related to the course, such as attending a class lecture or lab, or by participating in an online class with an assignment submission, completion of a test or exam, or other substantial course activity. A student who does not meet this deadline will be reported to the Admissions and Records Office and will be withdrawn as a no-show student. No refund will be applicable, and the student will not be allowed to attend/ participate in the class or submit assignments. Failure to attend or participate in a course will adversely impact a student's financial aid award.

Instructor Initiated Withdrawal

A student who adds a class or registers after the first day of class is counted absent from all class meetings missed. Each instructor is responsible for keeping a record of student attendance (face-to-face classes) or performance/participation (online classes) in each class throughout the semester.

When a student's absences equal twice the number of weekly meetings of a class (equivalent amount of time for summer session), the student may be dropped for unsatisfactory attendance in the class by the instructor.

Since attendance is not a valid measurement for online, a student may be withdrawn due to non-performance. A student should refer to his/her online course plan for the instructor's policy.

When an instructor withdraws a student for unsatisfactory attendance (face-to-face class) or non-performance (online), the last date of attendance/participation will be documented. A grade of "W" will be recorded during the first sixty percent (60%) period of a course. A student withdrawn after the sixty percent (60%) period will receive a grade of "F" or "U" except under documented mitigating circumstances when a letter of appeal has been submitted by the student. A copy of this documentation must be placed in the student's academic file.

The student will be notified of the withdrawal by the Admissions and Records Office. An appeal of reinstatement into the class may be approved only by the instructor and dean.

CHEATING/PLAGIARISM POLICY

Cheating includes the use of books, notes, electronic devices, or any other unauthorized material

during tests. In particular, students may not bring mobile phones into the testing center. Cheating also includes plagiarism, which is defined as “To present another's words or ideas as one's own or without attribution” (American Heritage Dictionary, 2019). Remember that plagiarism includes using words or ideas from Internet sites, as well as copying from print sources.

Any student found cheating will receive a grade of “0” on that assignment and may receive an “F” for the course. This “0” cannot be replaced by any other score.

NON-DISCRIMINATION STATEMENT

This college promotes and maintains educational opportunities without regard to race, color, national origin, religion, disability, sex, sexual orientation, gender identity, ethnicity, marital status, pregnancy, childbirth or related medical conditions including lactation, age (except when age is a bona fide occupational qualification), veteran status, or other non-merit factors. The following person has been designated to handle inquiries regarding the college’s non-discrimination policies: Dr. Mark C. Rowh, Vice President for Workforce Development and External Relations and Equal Opportunity Officer, 217 Edwards Hall, 540-674-3600, ext. 4241.

Inquiries concerning Title IX (sexual harassment, sexual assault/domestic violence/dating violence, and stalking) may be directed to Dr. Deborah Kennedy (Title IX Coordinator for Students), Dean of Student Services, 268 Rooker Hall, 540-674-3600, ext. 3690, dkennedy@nr.edu. For employees, Melissa Anderson, Interim Vice President for Finance & Administration Office, is the Title IX Coordinator for Employees, Godbey Hall Room 22, 540-674-3600, ext. 3660, manderson@nr.edu.

Inquiries concerning ADA and Section 504 may be directed to Ms. Lucy Howlett, Coordinator of The Center for Disability Services, 275 Rooker Hall, V/TTY 540-674-3619, Videophone 540-585-4724.

DISABILITY STATEMENT

If you are a student with a disability and in need of accommodations for this course, please contact the Center for Disability Services (CDS) for assistance. CDS is located within the Advising Center in Rooker Hall. For more information about disabilities services, see Center for Disability Services.

ACADEMIC SUCCESS CENTER (TUTORING CENTER)

NRCC offers free tutoring in every subject through the Academic Success Center, our one-stop campus resource for help with coursework. In addition to course-specific tutoring, the Academic Success Center houses the NRCC Writing Center, where students may work with tutors on issues specific to writing, whether for a course, a resume, a job application, or for pleasure.

Students may receive tutoring and/or writing assistance on an as-needed basis (walk-in), or via scheduled appointments. Students unable to come to campus may participate in online sessions by appointment. In addition, online tutorials for many courses are available on the website or through the Canvas portal “NRCC Tutoring Services” that students will find under “My Organizations.”

Tutoring is available during the week Monday-Friday. To schedule an appointment or meet with a tutor, visit the Academic Success Center in Godbey Hall (G131) on campus in Dublin, or the Christiansburg site (C202); students may also call (540) 674-3664 or complete an online tutor request form. For more information, including hours, visit the Academic Success Center webpage.

GENERAL HEALTH GUIDELINES AND STUDENT EXPECTATIONS

In guarding against the transmission of infectious illnesses, it is imperative that we follow specific health-related best practices.

As a condition for attending class or otherwise using NRCC facilities, I, as a student, agree to the following conditions:

1. I will follow all CDC, state, and local guidelines pertaining to diseases and health conditions. More information can be found at the links below.
    a. CDC Diseases and Conditions: https://www.cdc.gov/nchs/fastats/diseases-and-conditions.htm
    b. Virginia Department of Health: https://www.vdh.virginia.gov/
    c. New River Health District: https://www.nrvroadtowellness.com/
2. In the event of health threats or changes in guidelines, I understand in-person classes may be moved online, fully or partially, and I will need to be prepared to access technology and the internet with as little as 24 hours' notice.

By continuing my enrollment in class(es), **I agree to meet each of the expectations outlined above.**

New River Community College encourages all students to fully vaccinate against transmissible illnesses. Information about vaccinations can be found on the Virginia Department of Health website at www.vdh.virginia.gov.