## Pre-Calculus II (MTH 164)
## Fall 2015
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**Course Description (RCC MTH 164):**
The Pre-Calculus II course is taught during the student's fall semester of their junior year.  The class will focus heavily on trigonometry, combining skills from both geometry and algebra.  Topics will include evaluating trigonometric expressions (using both right triangle trigonometry and the unit circle), graphs of trigonometric functions, trigonometric identities, polar and parametric equations, and mathematical induction.  Upon successful completion of the course, students should be prepared for Calculus I (MTH 173).

**Text:**
Precalculus, 4th Ed.**;** Blitzer: Prentice Hall; 2010
*Please **cover** this text and keep it covered throughout the year!*

**Course Credit:**  3 credits

**Contact Information:**
Office: 804.758.6788        Home: 804.725.9026        e-mail: psanderson@cbgs.k12.va.us
Cell: 804.384.8919

I am available at CBGS from 7:30 AM to 3:00 PM by phone or email and at the home or cell number after school.

**Required Materials:**  One 3-ring binder, pencils, a large block eraser, and a graphing calculator. Graph paper and colored pencils may be useful.

**Attendance:**  Class attendance is, of course, required.  Be reminded of the CBGS policy in the *Handbook* which you signed.  Absences and tardiness will be reported daily to your home school and to parents on interims and grade reports.  Check for assignments you may miss by accessing the web site and clicking "courses."  You may also email or call me for assistance.

## Course Outline/Learning Sequence

**Ch. 4/Ch. 6 Trigonometric Expressions**
- Use trigonometric expressions to solve for a side or an angle of a right triangle.
- Solve a non-right triangle using the Law of Sines (including the ambiguous case)
- Solve a non-right triangle using the Law of Cosines
- Convert between degrees and radians.
- For a given angle, determine the reference angle and coterminal angles.
- Know the unit circle representations for any of the six trigonometric functions.
- Determine the exact value of any of the six trigonometric expressions for a $30^o$, $45^o$, or $60^o$ reference angle.
- Determine the exact value of any of the six trigonometric expressions for any quadrantal angle.

**Ch. 4 Graphs of Trigonometric Functions**
- Graph the sin, cos, tan, csc, sec, and cot parent functions.
- Graph a transformation of a parent trigonometric function.
- Write a periodic function based on given characteristics
- Model real world periodic phenomenon given data using periodic functions.
- Graph the function inverses of the sin, cos, and tangent functions.

**Ch. 5 Trigonometric Identities and Equations**
- Use the trigonometric identities to simplify a trigonometric expressions
- Use the trigonometric identities to verify a trigonometric identity
- Use the trigonometric identities to evaluate a trigonometric expression

**Ch. 6 Polar Coordinates, Polar Graphs, and Complex Numbers in Polar Form**
- Graph polar coordinates and basic polar equations (circles and lines) on polar graph paper.
- Using a transformational approach, graph roses, limacons, cardioids, and lemniscates.
- Convert a complex number between rectangular form and polar form.
- Determine products and quotients of complex numbers in polar form.
- Determine the power of complex numbers in polar form.
- Determine roots of complex numbers in polar form.

**Ch. 6 Vectors and Parametric Equations**
- Graphically determine the resultant from adding two or more vectors together.
- Using unit vectors $i$ and $j$, determine the resultant from adding two or more vectors together.
- Decompose a vector into its horizontal and vertical components.
- Determine the dot product of two vectors.
- Determine the angle between two vectors.
- Convert standard equations to parametric form and vice versa.
- Graph parametric equations.

**Make-up work policy:** I will not be using class time to remind you of any work that you have missed—our time together is too brief. That will be your responsibility and yours alone. Work that is severely late will be penalized and work that is still missing at the end of the grading period will be a zero.

**Honor Code:** Students are expected to follow the rules and procedures as outlined in the Student Honor Code. Please refer to the Student Handbook if you need guidelines. Failure to do so may result in dismissal from the course. Tests, quizzes, and other work as requested will be pledged.

**Emergency Evacuation Plan:** In each classroom, laboratory or other places where students are assembled for the purpose of instruction, a fire evacuation plan will be posted indicating the direction of travel from the room in the event it becomes necessary to evacuate the building as a result of fire or other emergency. This plan will be posted in a conspicuous place near the exit from the room.

Whenever the fire alarm sounds, the building will be evacuated. The instructor will ensure the fire door is closed upon leaving the area (doors with automatic closures on them). Instructors are also responsible for assisting disabled students.

If a classroom does not have an evacuation plan posted, the student or instructor should notify the academic dean.

*Course Expectations and Information:*

1. **Be Prepared:** Regardless of whether homework is graded or not, it will be essential to your *survival*. Promise. No siestas, no holidays. If you fall behind, you will have to work at least twice as hard to catch up. <u>Always</u> do homework, <u>always</u> take notes, <u>always</u> ask questions, <u>always</u> be prepared.

2. **Class Participation:** You MUST ask questions about concepts that you feel need better clarification. Do not worry about anyone's reaction, ask. Be engaged from the beginning and stay that way. Remember, I do not start actually teaching until you start asking questions. Until that point, I might as well be working from a script.

3. **Notebook:** As mentioned earlier, you will want a 3-ring binder. All materials I give you (quizzes, tests, worksheets, handouts, …) will be three-hole punched and need to be kept in your binders. BE ORGANIZED. Very few sloppy students can be successful math students. Many of you find that if you are physically disorganized, you will also be mentally disorganized…not good for mathematics.

4. **Homework:** Homework will be assigned daily to correspond to the classroom lecture. Assignments will be Math XL assignments and posted for the week by Monday afternoon and will be due by the following Monday. Because there is no limit to the number of times you can work a specific type of problem to get it correct, these homework assignments will be built into your grade *for at least the first nine-weeks*. There will be an opportunity each class period to ask questions about anything you are having difficulty with, though this should be minimal because of the on-line resources provided by Math XL.

5. **Grading:** I use a "total points" system. Every assignment (quiz, test, classwork, homework) will be given a number of points it is worth (the sum of the points from all of the questions). Your grade will be the points you earned relative to the points the assignment was worth. To compute your average at any point in the semester, take the total points earned and divide by the total points available.

6. **Cell Phones:** All cell phones and other electronic devices must be silenced and are not to be used during class, unless permission is given otherwise. If used in an unauthorized manner, electronics will be confiscated and returned at the end of the class period. Repeat offenders will be referred to the CBGS director.

7. **Tips on how to survive this and other college level courses:**
   - Do not fall behind.
   - Do all homework.
   - Ask questions.
   - Form a study group or just do homework with a partner.
   - Be organized!!
   - Schedule your time and use it effectively!
   - You need to be self-motivated in college!

Inclement Weather and School Closings Policy

• Closing of the Chesapeake Bay Governor's School is determined by the site (Rappahannock Comm. College-Glenns, Rappahannock Comm. College- Warsaw, or Caroline County School Board). For example: Essex County Schools may be closed due to weather but RCC-Warsaw is open; therefore CBGS will be in session. If a student's home school division is closed or delayed due to inclement weather, attendance at CBGS will be excused. Students will be given the opportunity to complete missed work without penalty.
• There may be an emergency in which the CBGS is closed and the particular school system is open. Students shall report to their respective school instead of going to CBGS.
• If there is a one-hour delay for the CBGS site (RCC- Glenns/Warsaw and Caroline), CBGS will open one hour late.
• If there is a two-hour delay for the CBGS site, CBGS will be closed and students are to report to their home high school.
• If the home high school opens one hour late, and CBGS opens on time, students from the home high school are to report to CBGS, one hour late.

Holiday Closings
• The Governor's School calendar may be different from a particular school system's. Therefore, there may exist holidays in which a particular school system is closed and the CBGS is open. Each school system is asked to encourage students to attend.
• In the event, CBGS is closed due to a holiday and a particular school system is open, students shall report to their respective schools instead of going to CBGS.


**CBGS Statement on Safety:**

What to know and do to be prepared for emergencies at CBGS/RCC:
 - Sign up to receive RCC text messaging alerts and keep your information up-to-date
        <https://alert.rappahannock.edu/index.php?CCheck=1>
 - Know the safe evacuation route from each of your classrooms.  Emergency evacuation routes
         are posted in campus classrooms.
 - Listen for and follow instructions from CBGS/RCC or other designated authorities.
 - Know where to go for additional emergency information.
- Report suspicious activities and object

**Statement on Americans with Disabilities Act**

Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 require Schools to provide an 'academic adjustment' and/or a 'reasonable accommodation' to any qualified individual with a physical or mental disability who self-identifies as having such. Students should contact/ inform CBGS faculty for appropriate academic adjustments or accommodations.