WHITNEY PRECALCULUS SYLLABUS

MTH 161/162
Pre Calculus I/II
School Year 2023-2024

Course Information

Purpose: This is a two semester basic Pre Calculus sequence.
Intended Audience: Students intending to pursue an undergraduate degree in engineering, mathematics, statistics, computer science, or physical sciences. This course is delivered face-to-face at the Governor's School.

Course Description and Credit Hours
(3 credits per course) Students are required to have a graphing calculator for this course. The TI-83 or TI-83 Plus is recommended. Prerequisite(s): Algebra 2 with a grade of C or better.

Pre Calculus 1: MTH 161 presents topics in power, polynomial, rational, exponential, and logarithmic functions, and systems of equations and inequalities. Precalculus I can also be applied in conjunction with Precalculus II in preparation for a course in calculus with analytic geometry. THIS IS AN APPROVED UCGS/PASSPORT COURSE.

Pre Calculus 2: MTH 162 presents trigonometry, trigonometric applications including Law of Sines and Cosines and an introduction to conics. Features instruction for mathematical, physical and engineering science programs. Lecture 4 hours per week. THIS IS AN APPROVED UCGS/PASSPORT COURSE.

Instructor Information

Name: Kenya Whitney
Email: kenya.whitney@nhrec.org
Office Hours: Wednesdays, 9:40am - 10:25am & 12:20pm - 1:05pm
Office Location: A76

Zoom Link:
https://nhrec-org.zoom.us/j/6261965342?pwd=RjdZWVRMZkRLQW5xT3ZRSXh3NE5RQT09

Text(s) and Materials
Title: Pre Calculus Mathematics for Calculus
Authors: Stewart
Publisher: Cengage
Edition: 7th
Required or Recommended: Required

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Course Materials

You do NOT have to purchase the textbook! You'll occasionally need a calculator in this course. I recommend a graphing calculator, but a scientific calculator will suffice. We will not use calculators on exams.

Course Policies

Homework assignments will be assigned regularly. Check your course calendar.

Quizzes will be paper and pencil based. Total of 6 quizzes.

Tests: There will be six tests. There will be no retests. Students are NOT allowed to use calculators on exams.

Lab: These labs are designed to provide hands-on activities, tests reviews, and collaborative supporting activities that will further your understanding of calculus.

Required Time-on-Task

This course is very intensive; 5 hours (outside of lecture) per week to study are required for successful completion of this course . Plan your semester so that you have enough time to be successful and time to get help when needed.

Grading/Evaluation Policy

Your final course grade is determined as the weighted average of the following:
Homework 10%
Quizzes 30%
Exams 45%
Lab 15%

The following grade average scale will be used to determine your final grade:
90 – 100%: A 80 – 89%: B 70 – 79%: C 60 – 69%: D Below 60%: F

Late Work Policy

Homework assignments are expected to be completed by the due date.
Automatic extensions of one week from the original due date will be granted with a 10% penalty. Extensions beyond this will be subject to instructor's discretion.

Make-Up/Missed Test Policy

Students are expected to take tests in class, on the specified date (exceptions made for students with accommodation letters). If there are mitigating circumstances, contact me BEFORE the test if possible and provide documentation. In general, no make-up tests will be given (an exception may be made, but not more than once per student during the semester, if the circumstances warrant it and you notify me before or on the test date, and you are able to take the test within two days of the scheduled date). No make-up test will be given to any student who does

not show up on the test date and has not contacted the instructor. With the instructor permission make-ups be given after the tests have been returned.

Important Dual Enrollment Dates

Fall 2023 Semester (MTH 263)
- Friday, September 15, 2023: Last day to register for college credit
- Wednesday, October 4, 2023: Last day to drop dual enrollment and class will not appear on the student's college transcript
- Friday, December 1, 2023: Last day to drop dual enrollment and class will appear as a "W" on the student's college transcript
- Tuesday, February 2, 2024: Grades posted to SIS

Spring 2023 Semester (MTH 264)
- Monday, January 29, 2024: Last day to register for college credit
- Friday, February 16, 2024: Last day to drop dual enrollment and class will not appear on the student's college transcript
- Friday, April 19, 2024: Last day to drop dual enrollment and class will appear as a "W" on the student's college transcript
- Friday, June 14, 2024: Grades posted to SIS

College Math Expectations
In order for you to be successful in your mathematics courses, the faculty of the mathematics department has developed the following common expectations of all students in mathematics Courses.
1. College mathematics is different than high-school mathematics. College mathematics courses cover at least triple the material in the same time frame as do high school mathematics courses. A certain amount of material has to be covered during each class and over the semester. To maintain this pace, you need to take responsibility for your own learning. This includes, but is not limited to:
    - Having all required materials (e.g. textbook, a calculator required in the course syllabus, software course registration code, an access to a reliable computer with internet available at GSST or at home) the first day of class.
    - Reading the syllabus/Calendar/Assignments documents completely.
    - Logging in on CANVAS at least twice a week to check for Announcements, Assignment updates, and your grades, and checking VPCC email daily.
    - Reading the textbook section to be covered before coming to class, viewing any video lecture if available, listening to the lecture and taking notes, reviewing notes provided on CANVAS for each section.
    - Assign for study at least 5 hours outside of class per week for each week.
    - There is no substitute for continued and ongoing studying and doing homework problems. If you do not do all the assigned homework problems, your chances of success in any math class are very low.

2. It is your responsibility to keep your homework up-to-date and monitor your success. If you are having difficulty with the course material, then you need to take action right away – do not wait until you have lost all hope! There are several options to get assistance:
    ○ Talk to your instructor during office hours.
    ○ Form a study group with your classmates - this is the best thing you can do for yourself whether you are struggling or not.
    ○ Visit Brainfuse online using myVPCC website to access tutors. Tutor information and hours are available at http://libguides.tncc.edu/tutoring
    ○ No Generative AI Usage Permitted
    ○ For the duration of this course, the use of Generative AI in assignments is strictly prohibited.
    ○ Assignments are opportunities for personal growth, critical thinking, and applying your acquired knowledge. Your individual effort and creativity are essential in demonstrating your understanding of the course material. Dependence on AI undermines these objectives and compromises the integrity of the learning process. We appreciate your commitment to academic honesty and dedication to upholding this course's principles by refraining from using Generative AI in your assignments.

Course Attendance Policy
Since this is a face-to-face class, attendance is measured in the traditional way: by attending class.

Calendar of Course Activities
The following schedule is subject to change as needed at the discretion of the instructor.
Changes will be announced on Canvas.

Week 1-3 Unit 1 Quiz 1 Test 1
Week 4-6 Unit 2 Quiz 2 Test 2
Week 7-9 Unit 3 Quiz 3 Test 3
Week 10- 12 Unit 4 Quiz 4 Test 4
Week 13-15 Unit 5 Quiz 5 Test 5
Weeks 16-18 Unit 6 Quiz 6 Test 6

Any changes to the course calendar will be announced in class.

Cheating Policy
If a student cheats on an assignment, they will receive a 0 on that assignment, and the incident will be reported.

Student Learning Outcomes Pre Calculus I
Upon completing the course, the student will be able to:

Relations and Functions
● 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.

Polynomial and Rational 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 ($f(x) > g(x)$)

Exponential and Logarithmic Functions

- 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.

Systems of Equations

- Solve three variable linear systems of equations using the Gaussian elimination method.

Student Learning Outcomes Pre Calculus II
Upon completing the course, the student will be able to:
- Trigonometric Functions
  - 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.
- Analytic Trigonometry
  ○ 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.
- Applications of Trigonometry
  ○ Solve right triangles and applications involving right triangles.
  ○ Use the Law of Sines and Cosines to solve oblique triangles and applications.
- Conics
  ○ 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.
- Sequences and Series (Optional unit at the discretion of the department, not required for transfer.)
  ○ Identify the terms of geometric sequences.
  ○ Find a particular term of geometric sequence.
  ○ Determine the formula for the an term of geometric sequences.
  ○ Find the sum of first n terms of finite geometric series.
  ○ Find the sum of infinite geometric series.
  ○ Introduce arithmetic concepts as time allows.

Communication Policies
Students are encouraged to communicate with their instructors via Canvas. When communicating outside of Canvas by email, students must use their GSST e-mail account when contacting their instructor, other offices at the college, or interacting with classmates. When communicating with instructors outside of Canvas, students should include the course and section number in text of the message. Students are responsible for checking their Canvas inbox and their GSST/VCCS e-mail account regularly, daily at a minimum.

Instructor Email Response Policy
Email from students will be returned by the instructor within 24 hours during weekdays and within 48 hours on weekends.

GSST Policies
Students should refer to the [Student Handbook](#) for the full list and explanation of GSST policies related to students.

Accessibility Accommodations

GSST operates in compliance with the Americans with Disabilities Act.

Academic Honesty

It is imperative that students maintain a high degree of individual honor in their scholastic endeavors. Scholastic dishonesty will not be condoned under any circumstances. Generally, scholastic dishonesty is interpreted as cheating on an examination or quiz, which includes giving or receiving information; copying, using unauthorized materials in tests; collaborating during examinations; substituting for another person or allowing substitutions during examination; plagiarizing or submitting work other than one's own; and colluding with another person or persons in submitting work for credit unless such collaboration is approved in advance by the instructor. Webster's Third International Dictionary defines plagiarism as follows: "Plagiarism--to steal and pass off, as one's own the ideas or words of another; to use without crediting the source; to present as new and original an idea or product derived from an existing source; to commit literary theft."

Technology Policy

Students in all modalities (face-to-face, hybrid, and online) will need access to a desktop or laptop computer and an internet connection suitable for using Canvas and other online resources necessary for success in their courses. Students who experience unexpected outages or other technology issues should contact their instructor as soon as possible. If email is unavailable, students should use other communication methods, such as the instructor's phone number.

Inclement Weather Policy

In the event of inclement weather, the GSST provides delay and cancellation information to local radio and television stations. If a student is still experiencing difficulties in transmission of Canvas assignments due to power or other outages, they should contact the instructor as soon as it is safe to do so via email, or call the instructor by phone, to resolve questions and concerns in a timely manner.

Attendance may affect overall course grade based on course-specific attendance policies. As per the Student Handbook, "students have the obligation to initiate their own withdrawals from classes" using the Student Information System (SIS).

Students can withdraw up until the date listed on the academic calendar for the term using SIS or Navigate.

For Dual Enrollment Courses

Dual Enrollment Statement

The decision to dual-enroll in a course requires careful consideration. You have options, as you can see from the DE module on Faculty Advising Canvas course. You may wish to contact your top

choice colleges to ask what the impact of taking a dual-enrollment course might be for your goals, particularly if you do not perform to your expectations in the course. Please be aware that you are generating a permanent college transcript with all the courses for which you are dual-enrolled. You can also use the dual-enrollment student guide from [Transfer Virginia](#) to help you determine the potential impact.

If you choose to dual-enroll, you must monitor your course grade. If you find you are not earning grades you want to have on your permanent college transcript, you may consider dropping the dual-enrollment portion prior to the Add/Drop date for the term of the course, or to withdraw from the dual-enrollment portion prior to the Withdrawal date. If you choose to withdraw from dual enrollment for the class, you will still earn high school credit and can plan to be well-prepared for the class in college. Dropping will have no record on your transcript, while withdrawal will leave a note on your college transcript indicating you withdrew, but no grade will be recorded on your college transcript. You can request a decline or withdrawal form from me or from Mrs. Yee.

No matter what you choose to do, I will respect your wishes. I want to work with you to support your learning, but I cannot learn the information for you; you will have to invest effort in the course in order to succeed. This may require you to learn new learning strategies that you haven't used in the past. I will do my utmost to support your personal learning in the class and encourage you to pursue your goals.

Check your the GSST email and Canvas for current news and offerings.

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Math Parent & Student Signature Page

Please return this sheet to Ms. Whitney no later than 09/04/23

Students: Please read these guidelines carefully, then sign below and have a parent sign. If you have any questions now or during the year about acceptable assistance, ask your teacher.

Communication between students, teachers, and parents is very important to a successful school year. Students have received a syllabus, which they are expected to review with parents. It was reviewed with Ms. Whitney in class and students had an opportunity to ask questions during class.

Parents, please sign below to indicate:
1. I have received and reviewed the complete class syllabus with my student. We understand that classroom rules, including the cell phone policy, will be enforced for both safety and academic success.
2. I have written my questions or concerns in the space provided below so Ms. Whitney can address them early. If that space is blank, it indicates I do not have any questions or concerns at this time, but I know how to reach Ms. Whitney in the future if needed.
3. I have read and discussed the syllabus and class expectations with my student for his/her/their mathcourse. My student understands what they mean and the consequences for disciplinary action.

Please check your preferred contact method (email is preferred):
- E-mail address: _____
- Cell phone: _____
- Home phone: _____

Questions? Concerns? Anything I should know about your student to help him, her, or they have a great year in Math?

_____

_____

Student Name (please print)	Student Signature	Date
_____	_____	_____
Parent/Guardian Name (please print)	Parent/Guardian Signature	Date
_____	_____	_____
Parent/Guardian Name (please print)	Parent/Guardian Signature	Date
_____	_____	_____