APPLIED CALCULUS I
MTH 271 Online

INSTRUCTOR INFORMATION

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COURSE DESCRIPTION

Description: Presents limits, continuity, differentiation of algebraic and transcendental functions with applications, and an introduction to integration. Prerequisite: MTH 163 or MTH 166 or equivalent. (Credit will not be awarded for both MTH 270 and MTH 271.)

Credits: 3
Submissions: 1 per lesson
Assessments: 5
Proctored Assessments: 5
Online Activities: Required

COURSE MATERIALS

Textbook: Calculus I with Precalculus: A One-Year Course. 3/e 2012 by Larson, Hostetler, and Edwards ISBN 978-0-8400-6833-0

Software: Enhanced WebAssign (bundled with new text from bookstore)

Calculator: A scientific calculator is recommended. The testing centers on campus will provide TI-30X IIS calculators for you to use on the test. ONLY the testing center issued calculator will be allowed on the test, no exceptions.

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

Additional resource materials for some NRCC classes can be found on the NRCC Web-based learning site at www.nr.edu/learninglinks.

The Student's Guide to Distance Education is available at http://www.nr.edu/de/pdf/stuguide.pdf.

COURSE INFORMATION

Prepared By: Pablo Chalmeta **Approved By:** Carol Hurst

A. INTRODUCTION

This is a Distance Education course designed specifically for those students whose learning styles are best served by providing instructional opportunities beyond the traditional classroom setting.

This class presents Trigonometric functions, limits, continuity, and differentiation of algebraic and transcendental functions with applications.

B. COURSE OBJECTIVES

In this class you will be learning about Trigonometry and Calculus. The examples are designed to show the applications of the material and show that the math you are learning can be useful. This is a required course in most curriculums and it will transfer the same as the non-DE version.

C. COURSE CONTENT

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

1. Compute average rate of change.
2. Estimate instantaneous rate of change using the average rate of change.
3. Determine the slope of the secant line of a function.
4. Graph and estimate the slope of a tangent line to a function by means of a secant line.
5. Evaluate the difference quotient for a function.
6. Evaluate limits.
7. State and apply the definition of a derivative.
8. State and apply the definition a continuity at a point.
9. Determine if a function is differentiable at a point.
10. Apply differentiation rules to algebraic, trigonometric, exponential, and logarithmic functions.
11. Evaluate higher order derivatives.
12. Evaluate implicit derivatives.
13. Through application of the first and second derivative of a function, determine the following:
    i. Intervals of increasing/decreasing
    ii. Concavity
    iii. Relative and absolute extrema
    iv. Inflection points.
14. Use derivatives to solve optimization problems.
15. Use implicit derivatives to solve related rates problems.

16. Identify exponential functions.
17. Convert exponential equations to and from logarithmic equations.
18. Solve exponential equations.
19. Solve logarithmic equations.
20. Use degree and radian units to measure angles.
21. Place an angle in standard position on the axes.
22. Determine the reference angle for an angle in standard position.
23. Define the trigonometric functions.
24. Evaluate the trigonometric functional values for an angle in standard position.
25. Apply the power, logarithmic, exponential, trigonometric, sum, and constant-times-a-function rules for integration.
26. Apply integration by substitution.
27. Apply the Fundamental Theorem of Calculus.
28. Approximate an integral with a Riemann Sum.
29. Calculate the area under a curve.

D. INSTRUCTIONAL PROCEDURES

Testing: Tests must be taken in the DE Testing Center in Martin Hall, at the NRV Mall Site, or through an approved proctor. Please take the tests on or before the scheduled dates to remain on track for successful completion of this course. **Refer to the Testing Information folder in Blackboard for more information about on and off campus testing.**

The testing centers on campus will provide TI-30X IIS calculators for you to use on the test. ONLY the testing center issued calculator will be allowed on the test, no exceptions.

Graded tests will be kept in the student's folder in the DE Testing Center or at the NRV Mall site, depending on where the student requested it be housed. 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 and test solutions can be found in Blackboard http://learn.vccs.edu. Updates to course information will also be done through the course webpage at http://www.nr.edu/chalmeta

E. GRADING/EVALUATION

Homework: Giving your best effort on homework is the single best thing you can do to help your mathematics. As such, the homework will submitted using the WebAssign software and will count for a significant portion of the grade (20%). The Tutoring Connection on the main campus also has qualified tutors who can work with you on a regular basis.

Tests. There will be four (4) written tests given during the semester. There will be no make up tests. Any missed test will receive the score of "0". See Final Exam below. Tests may be taken early with reasonable notice. *The average on all tests will count as 60% of the course grade.*

Final Exam. There will be one comprehensive final given during finals week. The score on the final can also be used to replace the lowest test score (including any missed test.) *The final will count as 20% of the course grade.*

Calculator: A scientific calculator is recommended. The testing centers on campus will provide TI-30X IIS calculators for you to use on the test. ONLY the testing center issued calculator will be allowed on the test, no exceptions.

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

Description	Percentage
Written Tests (4)	60%
Homework	20%
Final Exam	20%
Total:	**100%**

Grading Scale:

Grade	Final Average
A	90-100
B	80-89
C	70-79
D	60-69
F	0-59

NOTES:

1. If the school is closed on a test day, then the test will be due on the first day the school opens.

2. 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 written tests. The written tests **MUST** be taken on or before the scheduled dates; however, you'll be free to "work ahead."

3. The testing centers on campus will provide TI-30X IIS calculators for you to use on the test. ONLY the testing center issued calculator will be allowed on the test, no exceptions.

4. I do not curve grades. I do not "give" grades. You earn what you get so plan to work accordingly.

EMAIL POLICY

If you send me an e-mail, you MUST use your VCCS issued email address and include a **descriptive** subject line. Please remember to use complete sentences and follow the rules of grammar. Do not expect a prompt reply to your e-mails concerning last minute questions about an exam the next day. I will respond to your email within 24 hours.

F. WITHDRAWAL POLICY

Student Initiated Withdrawal Policy
A student may drop or withdraw from a class without academic penalty during the first sixty percent (60%) 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 sixty percent (60%) of a session, a student who withdraws or is withdrawn from a course will be assigned a grade of "W." A grade of "W" implies that the student was making satisfactory progress in the class at the time of withdrawal, that the withdrawal was officially made before the deadline published in the college calendar, or that the student was administratively transferred to a different program.

c. After that time, if a student withdraws from a class, a grade of "F" 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.

A retroactive grade of "W" may be awarded only if the student would have been eligible under the previously stated policy to receive a "W" on the last date of class attendance. The last date of attendance for a distance education course will be the last date that work was submitted.

Late withdrawal appeals will be reviewed and a decision made by the Coordinator of Student Services.

Instructor Initiated Withdrawal
Students who have not posted ALL materials by the last day to drop the class and receive a refund must be withdrawn by the instructor during the following week. No refund will be applicable.

The instructor will withdraw students who have not completed ALL assignments on Blackboard by the last day to receive a "W".

If you do not have a passing grade by the drop date, I may withdraw you from the class.

No-Show Policy
A student must either attend face-to-face courses or demonstrate participation in distance learning courses by the last date to drop for a refund. 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.

H. CHEATING/PLAGIARISM POLICY

A grade of zero will be awarded to any writing assignments or tests that show cheating or plagiarism. To plagiarize is "To use and pass off as one's own the ideas or writings of another." (Definition adapted from the American Heritage Dictionary.) Remember that plagiarism includes lifting words or ideas from Internet sites, as well as copying from print sources.

I. DIVERSITY STATEMENT

The NRCC community values the pluralistic nature of our society. We recognize diversity including, but not limited to, race, ethnicity, religion, culture, social class, age, gender, sexual orientation and physical or mental capability. We respect the variety of ideas, experiences and practices that such diversity entails. It is our commitment to ensure equal opportunity and to sustain a climate of civility for all who work or study at NRCC or who otherwise participate in the life of the college.

New River Community College does not discriminate on the basis of race, color, national origin, sex, disability, or age in its programs and activities. The following person has been designated to handle inquiries regarding the non-discrimination policies: Dr. Mark C. Rowh, Vice President for Workforce Development and External Relations, 217 Edwards Hall, 540-674-3600, ext. 4241.

J. DISABILITY STATEMENT

If you are a student with a documented disability who will require accommodations in this course, please register with the Center for Disabilities Services located in the Counseling Center in Rooker Hall for assistance in developing a plan to address your academic needs.