NEW RIVER COMMUNITY COLLEGE

DUBLIN, VIRGINIA

COURSE PLAN

Course Number and Title: MTH 175 Calculus of One Variable

Prepared by: Travis Coake (Instructor) — Spring, 2008 (Date)

Approved by: _____ (Interim Dean) — Spring, 2008 (Date)

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I. Course Description:

Presents differential calculus of one variable including the theory of limits, derivatives, differentials, anti-derivatives, and applications to algebraic and transcendental functions. Designed for mathematical, physical, and engineering science programs. Prerequisites: a placement recommendation for MTH 175 and four units of high school mathematics including Algebra I, Algebra II, Geometry, and Trigonometry or equivalent. Lecture 3 hours per week.

II. Introduction:

The course is designed to develop the skills and concepts in analytic geometry and calculus which are needed by pre-engineering students.

III. Objectives:

Calculus with Analytic Geometry

Upon successful completion of this course the student should be able to

1. Evaluate limits using the definition.
2. Evaluate limits using other techniques.
3. Evaluate limits of trigonometric functions.
4. Evaluate limits involving infinity and points of discontinuity.
5. Evaluate limits of indeterminate forms.
6. Identify continuous functions.

7. Find points of discontinuity of functions.
8. Find the derivative of a function using the definition.
9. Find the derivative of a function using the rules of differentiation.
10. Calculate the derivative as a rate of change.
11. Find the derivative of trigonometric functions.
12. Find derivatives using the chain rule.
13. Find derivatives using implicity differentiation.
14. Find higher order derivatives.
15. Locate any local extrema of functions.
16. Apply Rolle's Theorem.
17. Apply the Mean Value Theorem.
18. Apply the first derivative test to identify local extrema.
19. Find the concavity of the graph of a function.
20. Apply the second derivative to identify local extrema.
21. Solve problems involving extrema.
22. Solve problems involving related fields.
23. Solve application problems by interpreting the materials presented, including determining the nature and extent of the information needed, and present the answer in standard English.
24. Estimate and consider answers to mathematical problems in order to determine reasonableness

IV. Instructional Procedures:

The instructional procedures will include lectures, discussions, problem sessions, reviews and tests.

V. Instructional Materials:

A. Student Materials

Textbook: James Stewart, Calculus Early Transcendentals, 6th Ed., Brooks/Cole, 2003,

B. Instructional Materials
   1. Computers with software
   2. Graphing calculators (TI-85/86 or 89/92 recommended)
   3. Matlab R12 software or better

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

VI. Course Content:

a. Prerequisites for Calculus
b. Limits of functions
c. The Derivative
d. Applications of the Derivative

VII. Homework:

Giving your best effort on homework is the single best thing you can do to help you learn mathematics. As such I will collect homework every class period and will grade one problem on a 0/1 basis. You will receive a bonus on your test based on the number of correct homeworks turned in on time. The bonus will be calculated as follows:

Floor[(# of correct homeworks turned in)*10/(# of possible homeworks)]

The problems must be in order and fully worked out, not just copy of the answers in the back of the book. These must be turned in at the beginning of class. No late work will be accepted.

VIII. Evaluation Criteria and Grading Scale:

The grade for this course will be derived from three tests, Matlab worksheets and a final. There will be no make-up tests. The final exam grade will be substituted for the lowest test grade if it improves your average.

3 Tests	60%
Worksheets	15%
Final Exam	25%

Letter grades will be assigned based on your final percentage as follows:

90 – 100 = A
80 – 89 = B
70 – 79 = C
60 – 69 = D
0 – 57 = F

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

IX. E-mail Policy:

If you send me an e-mail, you should 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.

X. 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" 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.

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 revised and a decision made by the Director of Student Services.

Instructor Initiated Withdrawal Policy

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 in each class.

Students who have not attended class or picked up/accessed distance learning materials by the last day to drop class and receive a refund must be withdrawn by the instructor during the following week. No refund will be applicable.

Since attendance is not a valid measurement for Distance Education (DE) courses, students may be withdrawn due to non-performance. Students should refer to his/her DE course plan for the instructor’s policy.

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.

When an instructor determines that absences constitute unsatisfactory attendance, an Instructor Withdrawal Form should be completed and submitted to the Admissions and

Records Office within five days of when the student met the withdrawal criteria. The last date of attendance must be documented. A grade of "W" will be recorded during the first sixty percent (60%) period of a course. Students 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 for reinstatement into the class may be approved only by the instructor.

XI. Cheating:

The giving or receiving of any help on any graded portion (computer or written) of the course is considered cheating and will not be tolerated. Any student found cheating will receive a grade of "0" on that portion and possibly and "F" for the course. This "0" will not be replaced by the final exam score. When you are doing a computer Evaluate you are not allowed to use your book or notebook.

XII. Additional Information:

- Any student with special needs or circumstances should feel free to meet with me during office hours.
- I will be happy to schedule a time to help you with this course at times other than my scheduled office hours. The best way to get in touch with me is via email.

XIII. Disability and Diversity Statement:

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

The NRCC community values the pluralistic nature of our society. We recognize diversity that includes, but is 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.