

NEW RIVER COMMUNITY COLLEGE

DUBLIN, VIRGINIA

COURSE PLAN

Course Number and Title: MTH 176 - Calculus of One Variable II

Prepared By: Travis Coake Spring, 2008
(Instructor) (Date)

Approved By: _____ Spring, 2008
(Interim Dean) (Date)

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I. Course Description

Continues the study of integral calculus of one variable including indefinite integrals, definite integrals, and methods of integration with applications to algebraic and transcendental functions. Designed for mathematical, physical, and engineering science programs. Prerequisite MTH 175 or equivalent. Lecture 3 hours per week.

II. Prerequisites

MTH 175 (Calculus of one variable I) or equivalent.

III. Specific Objectives

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

1. Find antiderivatives of given functions.
2. Evaluate simple Differential Equation.
3. Find sums using sigma notation.
4. Approximate area using rectangles.
5. Evaluate definite integrals.
6. Apply the Fundamental Theorem of Calculus.
7. Find the actual area of a plane region.
8. Find the moments and center of mass of a plane region.
9. Find the inverse of a function and its derivative.
10. Evaluate natural logarithm functions.
11. Evaluate natural exponential functions.

12. Evaluate general exponential and logarithm functions.
13. Find the volumes of solids using disks, slabs, and washers.
14. Find the volumes of solids using shells.
15. Find work done using integrals.
16. Evaluate the inverse of trigonometric functions.
17. Find the derivative of inverse trigonometric functions.
18. Apply hyperbolic sin and cos functions.
19. Find integrals using substitution.
20. Find integrals of trigonometric functions.
21. Evaluate integrals by rationalizing substitutions.
22. Evaluate integrals using integration by parts.
23. Evaluate integrals of rational functions.
24. Evaluate limits in indeterminate forms of 0/0.
25. Evaluate limits in other indeterminate forms.
26. Evaluate improper integrals with infinite limits.
27. Evaluate improper integrals with infinite integrands.
28. 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.
29. Estimate and consider answers to mathematical problems in order to determine reasonableness.

IV. Instructional Procedures

Instruction will be primarily through lecture, making ample use of the TI-86 & 89, overhead projection system and IBM computers with Matlab software. Tests and exams are considered as an instructional device as well as a measurement device; questions will be geared toward forcing students to think for themselves and to tie together the facts and concepts presented in class. Interaction with the class is considered a valuable aid to instruction; therefore, questions and comments from students will frequently be solicited. The attempt is made to make lecture content as relevant and interesting to students as possible.

V. Instructional Materials

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

Calculator: TI86 or 89

Software: Matlab 6

VI. 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. I will grade one problem from each homework collected. You will receive a bonus on your test based on the number of correct problems. 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.

VII. Evaluation Criteria and Grading Scale

The grade for this course will be derived from three tests and a final. Each is worth 25% of your grade. There will be no make-up tests. The final exam grade will be substituted for the lowest test grade if it improves your average.

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.

VIII. 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 the 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”
- c. After that time, if a student withdraws from a class, a grade of “F” will be assigned.

A student may be awarded, retroactively, a grade of “W”, if and only if, the student would have been eligible under the previously stated policy to receive a “W” on the last date that he/she attended class.

1. The student must appeal for a grade of “W” based on attendance.
2. The admissions and Records staff will collect the relevant documentation for the appeal, including the last date of attendance, from the instructor of the course that is being appealed and other relevant documentation when mitigating circumstances are to be considered. For an appeal related to a distance education course (IDL), the last date that the work was submitted will be considered the last date of attendance.

3. All relevant documentation will be reviewed by the Director of Student Development and the withdrawal policy strictly applied in determination of changing the grade to “W”.
4. If the student ceased attending class during the first 60% of the semester, a grade of “W” will be given. If the last date of attendance falls beyond the sixty percent mark, the student must demonstrate mitigating circumstances and must have been passing before a grade of “W” will be awarded.
5. Appeals asserting mitigating circumstances must be further reviewed by and a determination made by a committee of faculty appointed by the Dean of Instruction and Student Services.

A grade of withdrawal implies that the student was making satisfactory progress in the class 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.

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 by the last day to drop class and receive refund must be deleted by the instructor during the following week. No refund will be applicable.

When a student’s absences equal twice the number of weekly meetings of a class, the student may be dropped for unsatisfactory attendance in the class by the instructor.

When an instructor determines that absences constitute unsatisfactory attendance, a Faculty Withdrawal Form should be completed and submitted to the Admissions and Records Office. The last date of attendance must be documented. A grade of “W” will be recorded during the first sixty percent (60%) period of the course. Students withdrawn after the sixty percent (60%) period will receive a grade of “F” except under mitigating circumstances, which must be documented. 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.

IX. 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.

X. 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.