

I. COURSE DESCRIPTION:

The course includes topics in Plane Analytic Geometry, Introduction to Calculus including derivatives and integration of algebraic functions, and applications of differentiation and simple integration.

II. LEARNING OUTCOMES

The basic objectives are that the student develop an understanding of the methods studied, demonstrate a knowledge of the facts presented, and show an ability to use these in the solution of problems. To accomplish these objectives, exercises are assigned. Test questions will be of near equal difficulty to questions assigned in the exercises. The level of competency demanded is the level required to obtain an overall passing average on the tests. The material to be covered is listed below and on the following page.

III. TOPICS TO BE COVERED	APPROXIMATE TIME FRAME
1. Plane Analytic Geometry of straight lines and conic sections including equations, properties, and graphing of each	16 hours
2. Derivative calculus including functions, notations, limits, slopes of secants/tangents, delta method, derivative rules, composite and implicit functions, and higher order differentiation	16 hours
3. Derivative applications including slopes of tangents, normals and curves, curvilinear motion, related rates, curve sketching, and maximum/minimum applications	16 hours
4. Integral calculus involving differentials, anti-derivatives, indefinite and definite integration, areas and volumes	16 hours

IV. LEARNING ACTIVITIES

TOPIC NUMBER	TOPIC DESCRIPTION	REFERENCE CHAPTER ASSIGNMENTS
1.0	Plane Analytic Geometry	Chapter 21
1.1	Straight line, slope, graphs, length, and intersections	Exercise 21.1& Ex. 21.2
1.2	Circle	Exercise 21.3 & Ex. 21.7
1.3	Parabola	Exercise 21.4 Exercise 21.7
1.4	Brief review of ellipse and hyperbola	Exercise 21.5 to Ex. 21.8 Review Exercise
2.0	The Derivative	Chapter 23
2.1	Functional notation	Exercise 3.1
2.2	Limits	Exercise 23.1
2.3	Derivative – delta method	Exercise 23.3 & Ex. 23.4
2.4	Derivative of polynomial by rule	Exercise 23.5
2.5	Product and quotient rule	Exercise 23.6
2.6	Composite functions – chain rule	Exercise 23.7
2.7	Implicit functions	Exercise 23.8
2.8	Higher derivatives	Exercise 23.9 Review exercise as required
3.0	Applications of Derivatives	Chapter 24
3.1	Tangents and normals	Exercise 24.1
3.2	Curvilinear motion	Exercise 24.3
3.3	Related rates	Exercise 24.4 and Handout
3.4	Curve sketching	Exercise 24.5 & Ex. 24.6
3.5	Maximum/minimum applications	Exercise 24.7 Review Exercises
4.0	Integration	Chapters 25 & 26
4.1	Differentials	Exercise 25.1
4.2	Antiderivatives	Exercise 25.1
4.3	Indefinite integral	Exercise 25.2
4.4	Definite integrals	Exercise 25.4
4.5	Area under a curve and area between two curves	Exercise 25.3 26.2
4.6	Volumes by integration	Exercise 26.3 and Handout

V. REQUIRED RESOURCES / TEXTS / MATERIALS:

1. Basic Technical Mathematics with Calculus, Washington, Allyn J. 7th (metric) Edition. Addison-Wesley, 2000
2. Calculator: *(Recommended)* SHARP Scientific Calculator EL-531L *Note: The use of some kinds of calculators may be restricted during tests.*

VI. EVALUATION PROCESS/GRADING SYSTEM:

MAJOR ASSIGNMENTS AND TESTS

While regular tests will normally be scheduled and announced beforehand, there may be an unannounced test on current work at any time. Such tests, at the discretion of the instructor, may be used for up to **30%** of the overall mark.

At the discretion of the instructor, there may be a mid-term exam and there may be a final exam, each of which can contribute up to **30%** of the overall mark.

The instructor will provide you with a list of test dates. Tests may be scheduled out of regular class time.

ATTENDANCE

It is your responsibility to attend all classes during the semester. Research indicates there is a high correlation between attendance and student success.

If you are absent from class, it is your responsibility to find out what work was covered and assigned and to complete this work before the next class. Your absence indicates your acceptance of this responsibility.

Unexcused absence from a test may result in a mark of zero ("0"). Absence may be excused on compassionate grounds such as verified illness or bereavement. On return from an excused absence, you should ask your instructor to schedule the writing of a make-up test. Failure to do so will be considered as an unexcused absence.

METHOD OF ASSESSMENT (GRADING METHOD)

<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
A+	Consistently outstanding	(90% - 100%) 4.00
A	Outstanding achievement	(80% - 89%) 3.75
B	Consistently above average achievement	(70% - 79%) 3.00
C	Satisfactory or acceptable achievement in all areas subject to assessment	(60% - 69%) 2.00
R	Repeat - The student has not achieved the objectives of the course, and the course must be repeated.	(less than 60%) 0.00

VI. EVALUATION PROCESS/GRADING SYSTEM (cont'd):

- X A temporary grade, limited to situations with extenuating circumstances, giving a student additional time to complete course requirements **(See below)**

CR Credit exemption

The method of calculating your weighted average will be defined by your instructor. Since grades are based upon averages, it follows that good marks in some tests can compensate for a failing mark in another test.

Make-Up Test (if applicable)

An "X" grade may be assigned at the end of the regular semester if you have met **ALL** of the following criteria:

- an overall average between 50% and 59% was achieved
- at least 50% of the tests were passed
- at least 80% of the scheduled classes were attended
- all of the topic tests were written

If you are assigned an "X" grade, you may convert it to a "C" grade by writing a make-up test on topics agreed to by the instructor. This test will be available at the time agreed to by your instructor.

At the end of the regular term, it is your responsibility to obtain your results from your instructor and, in the event of an "X" grade, to inquire when the make-up test will be available.

The score you receive on this make-up test will replace your original test score and be used to re-calculate your weighted average. If the re-calculated average is 60% or greater, a "C" grade will be assigned. If the re-calculated average is 59% or less, an "R" grade will be assigned.

"R" and "X" Grades at the end of the Semester

If an "X" grade is not cleared by the specified date, it will become an "R" grade. Except for extenuating circumstances, an "X" grade in Math will not be carried into the next semester.

"R" Grades during the Semester

A student with a failing grade and poor attendance (less than 80% attendance) may be given an "R" at any time during the semester.

VII. SPECIAL NOTES:

Students with special needs (e.g. physical limitations, visual impairments, hearing impairments, learning disabilities), are encouraged to discuss required accommodations with the professor and/or contact the Special Needs Office.

Advanced Standing

Students who have completed an equivalent post-secondary course must bring relevant documents to the Coordinator, Mathematics Department:

- a copy of course outline
- a copy of the transcript verifying successful completion of the equivalent course

Note: A copy of the transcript must be on file in the Registrar's Office.

VIII. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the instructor or the Prior Learning Assessment Office (E2203).