

MTH 229, Section 101, CRN 3056

Course Information, Fall 2009

Course Description: An introduction to analytic geometry. Limits, derivatives, and integrals of the elementary functions of one variable, including the transcendental functions. 5 hrs.

Prerequisites: MTH ACT of 27 (SAT 620) or above, or MTH 130 and 122, or MTH 127 and 122, or MTH 132 with "C" or higher).

Required Materials:

Stewart. *Calculus, Early Transcendentals, Sixth Edition*. Thomson/Brooks/Cole. 2008.
Graphing calculator

Meeting Times: M-F 10:00-10:50 Smith Hall 509

Objectives of the Course:

1. To give students a sound understanding of the fundamental concepts of calculus and analytic geometry and a thorough appreciation of its many applications. The limit is the foundation for all of the calculus.
2. To prepare students for a deeper understanding of the mathematics that is used in their science and engineering courses.
3. To develop facility in using graphing calculators and computers to solve mathematics problems.
4. To satisfy program requirements.

Topics Covered:

1. **Brief review of basic concepts of algebra**, including
 - Number systems
 - Distance formula
 - Slope of a straight line
 - Standard equations of lines
2. **Functions and limits**
 - Trigonometric and inverse trigonometric functions
 - Exponential functions and logarithms
 - Rate of change
 - Functions
 - Limit of a function at a point
 - Continuity and the Intermediate Value Theorem
 - Infinite limits
 - Limits at infinity

3. Differentiation and applications

- Definition of the derivative at a point and on an interval
- Derivatives of powers of x
- Slope of a line tangent to a curve
- Mean Value Theorem
- Rules for differentiation
- Implicit differentiation
- Velocity and acceleration
- Maxima and minima
- Critical points
- Concavity and inflection
- Derivatives of trigonometric functions
- Newton's Method
- Differentials
- Approximations
- Hyperbolic functions

4. Integration

- Antiderivatives
- Area as an integral
- Riemann sums
- Definite integrals as limits of Riemann sums
- Fundamental Theorem of Calculus
- u -substitution
- Change of variables

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Office Hours: 11:00 - 11:50 p.m. M-F

Grading Policy: Grades will be figured on a percentage basis with individual exams, and the total quiz average counted equally. There will be four hour long exams and a comprehensive two hour final exam. Quizzes are given daily and the lowest ten quiz grades will be dropped; no excuses are accepted for missed quizzes.

90 - 100% = A

80 - 89% = B

70 - 79% = C

60 - 69% = D

0 - 59% = F

Attendance Policy: Attendance will be taken by the daily quizzes. Borderline grades will be determined by class attendance.

Academic Dishonesty: Academic dishonesty will not be tolerated. Please read the Marshall University Academic Dishonesty Policy on pp. 106-109 of the Undergraduate Catalog.

Students with Disabilities: Marshall University is committed to making all programs, services, and activities fully accessible to students with disabilities. If you have a documented disability, please contact me during the first week of class to arrange appropriate accommodations.

Exams: Tests will be given as scheduled in the syllabus. If it is necessary to change the date of an exam, three day's notification will be given. If you are unable to take an exam due to unavoidable circumstances (e.g. illness, death in the family, accidents), you must contact me prior to the exam time and furnish written verification of the excuse in order to take a make-up test.

Exam Dates: September 11, October 2, October 23, November 13,
December 14 (10:15-12:15)

Other Important Dates: The last day to register is Friday, August 28. The last day to drop an individual course is Friday, October 30. The last day to withdraw from the university is Tuesday, December 8.

Course Outline (Rough Guideline):

Week No.	Text Coverage
1	1.1 – 1.3
2	1.4 – 1.6
3	2.1 – 2.3
4	2.4 – 2.7
5	2.8 – 2.9, 3.1
6	3.2 – 3.4
7	3.5 – 3.8
8	3.9 – 3.11
9	4.1 – 4.3
10	4.4 – 4.6
11	4.7 – 4.9
12	4.10. 5.1 – 5.2
13	5.3 – 5.5
14	5.5 – 5.6
15	Review