Montgomery County Community College
MAT 190
Calculus and Analytic Geometry I
4-4-0

COURSE DESCRIPTION:
A course designed primarily for students who will major in mathematics, science, engineering, or business. Topics include concepts from analytic geometry, limits, differentiation and integration of algebraic and transcendental functions, curve sketching and applications. A TI 84 Plus Graphing Calculator is required for the course.

REQUISITE(S):

LEARNING ACTIVITIES: *Learning activities for Core Competency assessment

1. Lecture
2. Labs
3. Group Problem-Solving Activities
4. Exams

SEQUENCE OF TOPICS:

1. A Preview of Calculus; Limits
2. Limits; Continuity; One Sided Limits
3. Infinite Limits
4. Derivatives; Tangent Line Problem; Rates of Change
5. Derivative Formulas; Chain Rule; Logarithmic Differentiation; Inverse Functions
6. Implicit Differentiation. Related Rates
7. Extrema on an Interval; R Theorem; Mean Value Theorem
8. Increasing, decreasing functions; First Derivative Test; Concavity; Second Derivative Test; Limits at Infinity
9. Curve Sketching; Optimization Problems
10. Differentials
11. Indeterminate
12. Antiderivatives and Indefinite Integration; Area; Riemann Sums
13. Definite Integrals; the Fundamental Theorem of Calculus

LEARNING MATERIALS:

Textbook:

Larson & Edwards. (2014). Calculus (10th ed.) Brooks Cole Cengage Learning
James Stewart , Calculus Early Transcendentals ,8th edition, Cengage Learning

Calculator:

TI-84 Plus Graphing Calculator. If a student has a TI-83+, they do not need to buy a TI-84+.

Other learning materials may be required and made available directly to the student and/or via the and/or course management system.

COURSE APPROVAL:

Prepared by:	Edwina K. Smith, Professor of Mathematics	Date: 9/1995
Revised by:	Thomas Moyer, Professor of Mathematics	Date: 6/1998
Revised by:	Roger Willig, Professor of Mathematics	Date: 11/1999
Revised by:	Thomas Moyer, Professor of Mathematics	Date: 5/2002
Revised by:	Walter R. Hunter, Professor of Mathematics	Date: 10/2004
Revised by:	Walter R. Hunter, Professor of Mathematics	Date: 5/2005
Revised by:	Marion Graziano	Date: 12/2/2012

VPAA/Provost or designee Compliance Verification:
Victoria L. Bastecki-Perez, Ed.D. Date: 2/18/2013

Revised by: Walter Hunter Date: 9/21/2016
VPAA/Provost or designee Compliance Verification:
Victoria L. Bastecki-Perez, Ed.D. Date: 9/21/2016

Revised by: Marion Graziano/Debbie Dalrymple Date: 8/2/2017
VPAA/Provost or designee Compliance Verification: Date: 8/24/2017

ssion. It was developed, approved and will be delivered in full compliance with the policies and procedures established by the College.