

**Section**

17962 D 236 MWF 0830-0945

**Credits: 4**

**Prerequisite:** M140

**Professor:** Vincent J. Motto

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**Office:** Dana 220/208

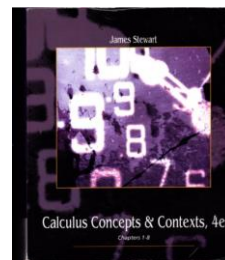
**Office hours:**

MWF 1000 – 1100 & by appointment

**Course site:** [www.vincesplace.com](http://www.vincesplace.com) &  
Blackboard

**Texts & Supplies:**

You will need a graphing calculator---a Texas Instruments, TI-89 is required. The required text is **Calculus: Concepts and Contexts 4e** by James Stewart published by Brook/Cole CENGAGE Learning.



**Catalog Description:**

Functions; limits; continuity; differentiation of algebraic, trigonometric, logarithmic, and exponential functions; applications of derivatives; and an introduction to integration. Prerequisite: M 140 or equivalent. Only 1 additional credit given to students who have received credit for M112.

**Course Objectives:**

At the completion of this course, the student will:

- Calculate or estimate limits of given functions, graphs, tables including L'Hopital's Rule
- Determine whether a function given by a graph or formula is continuous or differentiable at any given point.
- Distinguish between average and instantaneous rate of change, and interpret the definition of the derivative graphically.
- Calculate derivatives of polynomial, rational, common transcendental functions, combinations of these functions, and implicitly defined functions.
- Apply the ideas and techniques of derivatives to related rate problems.
- Finding extreme values of modeling functions given by formulas or graphs
- Estimate a slope, a rate of change and the reasonableness of a result.
- Interpret solutions to applied problems, attaching the appropriate units to an answer.
- Calculate the Riemann sum for a given function, partition and collection of evaluation points
- Describe a definite integral as the limit of a Riemann sum, the area under a curve, the distance traveled by a moving object, and a total accumulation.
- Determine the appropriate units for a definite integral.
- Describe the meaning of the antiderivative of a function.
- Determine the antiderivatives of polynomial, trigonometric, exponential and logarithmic functions.
- Determine the values of definite integrals using antiderivatives and areas.
- Approximate the numerical values of definite integrals.
- State and paraphrase the Fundamental Theorem of Calculus.
- Apply the ideas of definite integrals to solve problems area and volumes
- Distinguish assumptions and conclusions in mathematical statements.
- Become an intermediate to expert user of the graphing calculator (TI-89)

## Evaluation:

### Teaching Methods:

- **Lectures:** Important material from the text and outside sources will be covered in class. Students should plan to take careful notes as not all material can be found in the text and readings. Discussion is encouraged as is student-procured, outside material relevant to topics being covered.
- **Homework Problems:** Problems will be periodically assigned to help support and supplement class discussions and demonstrations. WeBWork assignments will be made and are expected to be completed on time.
- **Worksheets:** The class will be divided into work groups to complete these assignments. It will involve work time both inside and outside class time.
- **Quizzes:** Periodically there will be in-class quizzes. There will be no make up for missed quizzes.
- **Tests:** There will be 4 tests during the semester. Each test will be preceded by sample of possible of problems
- **Labs:** There will be 3 laboratories during the semester. Group work is encouraged.
- **Final Examination:** There is a departmental final exam and the date of it will be announced shortly (TBA).
- **Internet:** All materials - Class notes, instructional material, and student assignments - will be distributed on the Blackboard and Internet at [www.vincesplace.com](http://www.vincesplace.com).

## Grading:

Your final grade will be determined on the total points which you have accumulated.

Assignment	Percentage
Tests (4)	40%
Final Examination	20%
Laboratories (3)	15%
Homework & WeBWork	10%
Quizzes & Group Work	15%

No grade will be assigned until all of the assignments are completed. Submission of assignments in electronic form (e-mail) is preferred when possible.

Grade	Range	Grade	Range
A	94 - 100	C	74 -76.9
A-	90 - 93.9	C-	70 -73.9
B+	87 - 89.9	D+	67 - 69.9
B	84 - 86.9	D	64 - 66.9
B-	80 - 83.9	D-	60 - 63.9
C+	77 - 79.9	F	below 60

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## Policies

Below you will find a summary of course and University policies. Information about my course policies can be found on my [website](#) and information about University policies on the University of Hartford [website](#). These summaries are given for your convenience.

- Attendance---All students are expected to attend every class.
- Work Integrity---Honesty and integrity are expected in all academic work. Your work should be yours alone.
- Social Interaction
  - Civility---All people at the college deserve to be treated with respect and courtesy.
  - Electronic Devices---Please place your phones in a “courtesy” mode and put away your portable music playing devices. If you need to carry on a conversation please leave the classroom.
  - Emails---When communicating with me please include your class in the subject heading and your name.
  - Sexual Harassment will not be tolerated.
- Special Needs---Students with documented special needs will be accommodated.
- Student Rights---The process of Academic Grievances can be found in the University catalog.
- Modifications to the syllabus---Any changes to the syllabus will be discussed with you

## Tentative Schedule of Events

Date	Activity
01/22	Introduction
01/24	1.1 Four Ways to Represent a Function
01/27	1.2 Mathematical Models: A Catalog of Essential Functions 1.3 New Functions from Old Functions
01/29	1.4 Graphing Calculators and Concepts
01/30	1.5 Exponential Functions
02/03	1.6 Inverse Functions and Logarithms 1.7 Parametric Curves
02/05	Problem Day
02/07	Exam 1

Date	Activity
02/10	2.1 The Tangent and Velocity Problems
02/12	2.2 The Limit of a Function
02/14	2.3 Calculating Limits Using the Limit Laws
02/17	2.4 Continuity
02/19	2.5 Limits Involving Infinity
02/21	2.6 Derivatives and Rates of Change
02/24	2.7 The Derivative as a Function
02/26	2.8 What Does $f'$ Say about $f$ ?
02/28	Problem Day
03/03	Test # 2
03/05	3.1 Derivatives of Polynomials and Exponential Functions
03/07	3.2 The Product and Quotient Rules
03/10	3.3 Derivatives of Trigonometric Functions
03/12	3.4 The Chain Rule 3.5 Implicit Differentiation
03/14	3.6 Inverse Trigonometric Functions and Their Derivatives 3.7 Derivatives of Logarithmic Functions
	<b>Spring Break</b>
03/24	3.8 Rates of change in the Natural and Social Sciences
03/26	3.9 Linear Approximations and Differentials
03/28	Problem Day

Date	Activity
03/31	Test # 3
04/02	4.1 Related Rates
04/04	4.2 Maximum and Minimum Values
04/07	4.3 Derivatives and the Shapes of Curves
04/09	4. 4 Graphing with Calculus and Calculators
04/11	4.5 Indeterminate Forms and l'Hopital's Rule
04/14	4.6 Optimization Problems
04/16	Problem Day
04/18	Test # 4
04/21	5.1 Areas and Distances
04/23	5.2 The Definite Integral
04/25	5.4 The Fundamental Theorem of Calculus
04/28	5.5 The Substitution Rule
04/30	Applications of Integration
05/02	Applications of Integration
05/05	Review for Final Exam
TBA	Departmental Final Exam in room TBA

\*\*\* This course syllabus is subject to change at the discretion of the instructor \*\*\*  
 If you have any problems with class/instructor, discuss them first with your instructor and then, for additional assistance contact the Department Chair, Dr. John Williams (860.768.4628).