Office: 213B Elliott Hall. Email: hiseri@mansfield.edu, Web page: http://faculty.mansfield.edu/hiseri.

Office Hours: 12:30-1:30 MWF and 3:00-4:00 TTh.

Text: (Optional): Calculus, Larson and Edwards (any edition). You will probably use the current edition if you take Calculus II from another instructor next semester. You won’t really need it this semester.

Attendance: The University’s attendance policy is stated below. I will accept a statement from you as documentation, and I will generally use the final exam as a make-up exam for missed tests. I will track attendance with the quizzes and labs, and I will accept late assignments within a reasonable time (basically, before the associated exam).

Catalog Description: The purpose of this course is to develop a good understanding of limit, continuity, the derivative and its uses (including modeling and solving problems), to introduce the definite integral, and to establish the important relationship between the derivative and the definite integral. In this context the course will examine different classes of functions numerically, symbolically, and graphically. This course is intended for mathematics, science, and engineering majors. Prerequisite: MA 1165 or high school algebra and trigonometry.

Program Assessment Evidence: The final exam will be retained and analyzed (anonymously) to assess the Student Learning Outcomes listed below.

Calculator: You may want to use a calculator for this class, and you will be allowed to use it on tests. A $10-$15 scientific calculator or statistical calculator should be sufficient.

Assignments: 10% total Homework, quizzes, and labs.
22% each Three Tests (Wednesdays, Sept 27th, Oct 18th, and Nov 15th).
24% Final Exam (Wednesday, Dec 13th at 8:00am or 10:15am).

Letter Grades: I will assign letter grades based on the following percentages. An A is 93% or better. An A- is 90% or better. A B+ is 87% or better. A B is 83% or better. A B- is 80% or better, A C+ is 77% or better, A C is 73% or better, A C- is 70% or better, A D+ is 67% or better, A D is 63% or better, and a D- is 60% or better. Anything below 60% is an F.

Material to be covered: See Course Calendar. (http://faculty.mansfield.edu/hiseri/MA2231/MA2231.htm)

Course Goals: Students will develop skills and knowledge of standard concepts fundamental to calculus, particularly the derivative.

Course Objectives:
1. Develop the concept of limit through multiple representations (numerical, graphical, and symbolic)
2. Develop the concept of derivative and standard algorithms for taking derivatives
3. Explore applications of derivatives in contextual problems
4. Apply the derivative concept to the exploration of function behavior
5. Introduce the concept of antiderivative and integral

Student Learning Outcomes: Students will be able to:
1. Demonstrate knowledge of limit
2. Discuss the concept of derivative and take derivatives using standard rules.
3. Solve realistic application problems.
4. Use Maple to reconcile a function’s behavior with characteristics in first and second derivatives.
5. Take integrals using standard rules.
BS Mathematics Program Outcomes:
1. Common Mathematics Content Knowledge: Students will gain an understanding and awareness of the key concepts found in the standard subject areas of
   - 1-1. calculus
   - 1-2. logic
   - 1-3. set theory
   - 1-4. linear algebra
   - 1-5. probability and statistics
   - 1-6. history of mathematics
2. Proof and Justification: Students will develop the skills necessary to formulate and understand proofs and to provide justification.
3. Abstract Reasoning: Students will develop the ability to reason abstractly and rigorously.
4. Technology: Students will develop skills necessary to use technology in doing and learning mathematics.
5. Applied Mathematics Concentration: Content Knowledge: Students will gain an understanding and awareness of the key concepts found in the application of the subject areas of
   - 5-1. differential equations
   - 5-2. numerical analysis
   - 5-3. operations research.
6. Pure Mathematics Concentration: Content Knowledge: Students will gain an understanding and awareness of the key concepts found in the subject areas of
   - 6-1. geometry
   - 6-2. abstract algebra
   - 6-3. real analysis.

Course Outcomes meet BS Math Program Outcomes as shown below.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>1- Calculus</th>
<th>1- Logic</th>
<th>1- Set theory</th>
<th>1- Linear Algebra</th>
<th>1- Stats and Prob</th>
<th>1- History of Math</th>
<th>1- Proof and Justification</th>
<th>1- Abstract Reasoning</th>
<th>1- Technology</th>
<th>5- Diff. Eq.</th>
<th>5- Num. Anal.</th>
<th>5- Op. Res.</th>
<th>6- Geometry</th>
<th>6- Algebra</th>
<th>6- Real Analysis</th>
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<tbody>
<tr>
<td>MA 2231 - Calculus I</td>
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<td>1. Knowledge of Limit.</td>
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<td>2. Derivatives.</td>
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<td>3. Applications.</td>
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<td>4. Maple.</td>
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<td>5. Antiderivatives</td>
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General Education Outcomes. In addition to the above, this course addresses the following General Education Outcomes.
1. Transform/manipulate numerical and algebraic expressions
2. Find solutions to equations
3. Given a table or graph, answer questions related to the date being presented
4. Given a data set or equation, compute an appropriate statistic or parameter (e.g., mean, standard deviation, slope, critical point)
5. Given a data set or equation put into a specific tabular or graphical form
Protection of Minors Requirements

Victims’ Bill of Rights) Reports of Title IX matters should be directed to titleix@mansfield.edu.

Title IX Requirements: In order to meet this commitment and to comply with Title IX of the Educational Amendments of 1972 and guidance from the Office for Civil Rights, the University requires faculty members to report incidents of sexual violence shared by students to the University’s Title IX Coordinator. The only exceptions to the faculty member’s reporting obligation under Title IX are when incidents of sexual violence are communicated by a student during a classroom discussion, in a writing assignment for a class, or as part of a University-approved research project. Kacy Hagan (khagan@mansfield.edu) serves as Mansfield University’s Title IX Coordinator. Additional information regarding the reporting of sexual violence and the resources that are available to victims of sexual violence is set forth at: http://www.mansfield.edu/title-ix/upload/Title-IX-Policy-FINAL-7-2016.pdf; http://www.mansfield.edu/titleix/resources.cfm (Title IX Resources), and http://www.mansfield.edu/title-ix/bill-of-rights.cfm (Sexual Misconduct). 

Title IX and Protection of Minors Legislation: Reporting Obligations Mansfield University and its faculty are committed to assuring a safe and productive educational environment for all students.

Title IX Requirements: In order to meet this commitment and to comply with Title IX of the Educational Amendments of 1972 and guidance from the Office for Civil Rights, the University requires faculty members to report incidents of sexual violence shared by students to the University’s Title IX Coordinator. The only exceptions to the faculty member’s reporting obligation under Title IX are when incidents of sexual violence are communicated by a student during a classroom discussion, in a writing assignment for a class, or as part of a University-approved research project. Kacy Hagan (khagan@mansfield.edu) serves as Mansfield University’s Title IX Coordinator. Additional information regarding the reporting of sexual violence and the resources that are available to victims of sexual violence is set forth at: http://www.mansfield.edu/title-ix/upload/Title-IX-Policy-FINAL-7-2016.pdf; http://www.mansfield.edu/titleix/resources.cfm (Title IX Resources), and http://www.mansfield.edu/title-ix/bill-of-rights.cfm (Sexual Misconduct).

Victims’ Bill of Rights) Reports of Title IX matters should be directed to titleix@mansfield.edu.

Protection of Minors Requirements: Faculty members are obligated to report sexual violence or any other abuse of a student who was, or is, a child (a person under 18 years of age) when the abuse allegedly occurred, to Director of Human Resources Kacy Hagan (khagan@mansfield.edu), as designated in the University’s protection of minors policy. No exceptions apply to this reporting obligation. Mansfield University’s Protection of Minors policy is available at http://www.mansfield.edu/hr/protection-of-minors.cfm.