The student will learn about functions of one variable, including the concepts of limit, continuity and the derivative. The student will be able to compute derivatives of various functions using the definition of the derivative, the power rule, the product and quotient rules, the chain rule, and implicit differentiation. The student will learn the Mean Value Theorem and the Intermediate Value Theorem. The student will apply these ideas to various problems involving related rates, curve sketching, optimization, and linear approximation. The student will learn about antidifferentiation and the Riemann integral, and will be able to compute Riemann integrals of some simple functions using the Fundamental Theorem of Calculus. Finally, the student will apply these techniques to computing areas and volumes.

The syllabus is keyed to the text for this course which is: *Single Variable Calculus*, 7th Edition, Early Transcendentals, with WebAssign, Hunter College Custom Edition, James Stewart, Cengage Publishing. Please make an effort to read the indicated section before it is covered in class.

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<td>8/26</td>
<td>FRI</td>
<td>2.1 The Tangent and Velocity Problems</td>
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| 2     | 8/30   | TUE | 2.2 The Limit of a Function  
|       |        |     | 2.3 Calculating Limits Using the Limit Laws  
| 3     | 9/2    | FRI | 2.5 Continuity  
|       |        |     | 2.6 Limits at Infinity; Horizontal Asymptotes  
| 4     | 9/6    | TUE | 2.7 Derivatives and Rates of Change  
| 5     | 9/9    | FRI | 2.8 The Derivative as a Function  
| 6     | 9/13   | TUE | 3.1 Derivatives of Polynomials and Exponential Functions  
|       |        |     | 3.2 The Product and Quotient Rules  
| 7     | 9/16   | FRI | 3.3 Derivatives of Trigonometric Functions  
| 8     | 9/20   | TUE | 3.4 The Chain Rule  
| 9     | 9/23   | FRI | 3.5 Implicit Differentiation  
| 10    | 9/27   | TUE | 3.6 Derivatives of Logarithm Functions  
|       |        |     | Review  
| 11    | 10/4   | TUE | Examination I; Covers 2.1-2.3, 2.5-2.8, and 3.1-3.5  
| 12    | 10/11  | TUE | 3.7 Rates of Change in the Natural and Social Sciences  
|       |        |     | 3.8 Exponential Growth and Decay  
| 13    | 10/14  | FRI | 3.9 Related Rates  
|       |        |     | 3.10 Linear Approximation and Differentials  
| 14    | 10/18  | TUE | 4.1 Maximum and Minimum Values  
|       |        |     | 4.2 The Mean Value Theorem  
| 15    | 10/21  | FRI | 4.3 How Derivatives Affect the Shape of a Graph  
| 16    | 10/25  | TUE | 4.4 Indeterminate Forms and L'Hopital’s rule  
| 17    | 10/28  | FRI | 4.5 Summary of Curve Sketching  
| 18    | 11/1   | TUE | 4.7 Optimization Problems  
|       |        |     | 4.7 Optimization Problems (cont.)  
| 19    | 11/4   | FRI | 4.9 Antiderivatives  
|       |        |     | Review  
| 20    | 11/8   | TUE | Examination II; Covers 3.6-3.9 and 4.1-4.5,4.7  
| 21    | 11/11  | FRI | 5.1 Areas and Distances  
| 22    | 11/15  | TUE | 5.2 The Definite Integral  
| 23    | 11/18  | FRI | 5.3 The Fundamental Theorem of Calculus  
| 24    | 11/29  | TUE | 5.4 Indefinite Integrals and the Total Change Theorem  
| 25    | 12/2   | FRI | 5.5 The Substitution Rule  
| 26    | 12/6   | TUE | 6.1 Areas Between Curves  
| 27    | 12/9   | FRI | 6.2 Volumes  
| 28    | 12/13  | TUE | 6.3 Volumes by Cylindrical Shells  
| 29    | 12/14  | WED | Uniform Final Examination: Time and Place TBA |