

# MATH1134 - Calculus I

Credits:	5 (5/0/0)
Description:	Meets MnTC Goal Areas 2 and 4. This course includes limits and continuity, derivatives, definite and indefinite integrals of algebraic, trigonometric, exponential and logarithmic functions, and applications of the derivative and definite integral.
Prerequisites:	<ul style="list-style-type: none"> <li>• MATH1116</li> <li>OR</li> <li>• MATH1118</li> <li>OR</li> <li>• MATH1115</li> <li>• or by placement exam</li> </ul>
Corequisites:	
Pre/Corequisites*:	
Competencies:	<ol style="list-style-type: none"> <li>1. Examine precalculus concepts including algebraic functions and graphs.</li> <li>2. Explore the concepts of limits and continuity.</li> <li>3. Discover the derivative through the limit process and the tangent line problem.</li> <li>4. Perform the basic differentiation techniques.</li> <li>5. Apply differentiation to find extrema.</li> <li>6. Find area using Riemann sums and integration.</li> <li>7. Utilize the fundamental theorems of Calculus to evaluate definite integrals.</li> <li>8. Perform numerical integration and integration by substitution.</li> <li>9. Differentiate and integrate logarithmic functions.</li> <li>10. Differentiate and integrate exponential functions.</li> <li>11. Perform differentiation using the chain rule.</li> <li>12. Utilize implicit differentiation.</li> <li>13. Differentiate using the product and quotient rules.</li> <li>14. Utilize the Mean Value Theorem and Rolle's Theorem.</li> <li>15. Use differentiation for graphing, related rates, differentials, and optimization.</li> <li>16. Perform basic integration techniques.</li> </ol>
MnTC goal areas:	<ol style="list-style-type: none"> <li>2. Critical Thinking</li> <li>4. Mathematics/Logical Reasoning</li> </ol>

\*Can be taking as a Prerequisite or Corequisite.