# MATH1134 - Calculus I

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| 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: | • MATH1116<br>OR<br>• MATH1118<br>OR<br>• MATH1115<br>• or by placement exam |
| Corequisites: | |
| Pre/Corequisites*: | |
| Competencies: | 1. Examine precalculus concepts including algebraic functions and graphs.<br>2. Explore the concepts of limits and continuity.<br>3. Discover the derivative through the limit process and the tangent line problem.<br>4. Perform the basic differentiation techniques.<br>5. Apply differentiation to find extrema.<br>6. Find area using Riemann sums and integration.<br>7. Utilize the fundamental theorems of Calculus to evaluate definite integrals.<br>8. Perform numerical integration and integration by substitution.<br>9. Differentiate and integrate logarithmic functions.<br>10. Differentiate and integrate exponential functions.<br>11. Perform differentiation using the chain rule.<br>12. Utilize implicit differentiation.<br>13. Differentiate using the product and quotient rules.<br>14. Utilize the Mean Value Theorem and Rolle's Theorem.<br>15. Use differentiation for graphing, related rates, differentials, and optimization.<br>16. Perform basic integration techniques. |
| MnTC goal areas: | 2. Critical Thinking<br>4. Mathematics/Logical Reasoning |

**Can be taking as a Prerequisite or Corequisite.*

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