# MATH1135 - Calculus II

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| Credits: | 5 (5/0/0) |
| Description: | Meets MnTC Goal Areas 2 and 4. This course includes integration of logarithmic, exponential, trigonometric and hyperbolic functions and their inverses. Students will apply techniques of integration. Polar coordinates, conic sections, indeterminate forms, improper integrals and infinite series are also included. |
| Prerequisites: | • MATH1134 |
| Corequisites: | |
| Pre/Corequisites*: | |
| Competencies: | 1. Differentiate exponential and logarithmic functions.<br>2. Integrate exponential and logarithmic functions.<br>3. Use integration to find area and volume of solids of revolution.<br>4. Use integration to find arc length, surface area of irregular solids, and work done by a variable force.<br>5. Evaluate indeterminate form using L'Hopital's Rule.<br>6. Investigate methods of integration including substitution, trigonometric substitution, and integration by parts.<br>7. Determine the convergence or divergence of a sequence using a variety of tests.<br>8. Determine the convergence or divergence of a series using a variety of tests.<br>9. Construct the Taylor and Maclaurin polynomial approximations of elementary functions.<br>10. Construct equations of the conic sections: parabolas, ellipses, and hyperbolas.<br>11. Evaluate plane curves with parametric equations.<br>12. Determine the equations, graphs, derivatives, and areas in polar coordinates.<br>13. Differentiate trigonometric functions and their inverses.<br>14. Differentiate hyperbolic functions and their inverses.<br>15. Integrate trigonometric functions and their inverses.<br>16. Integrate hyperbolic functions and their inverses. |
| MnTC goal areas: | 2. Critical Thinking<br>4. Mathematics/Logical Reasoning |

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

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