Marshall University

College of Science

Mathematics Department

MTH 140: Applied Calculus

Course catalog description

A brief survey of calculus including both differentiation and integration with applications. Not to be substituted for Mathematics 229.

Credit hours

3 hours

Prerequisites

ACT Math 24 or a grade of C or higher in MTH 127 or MTH 130

List of topics

- **Algebra Review**
  - Graphs and functions
  - Straight lines and linear functions
  - Other functions--quadratic, exponential and logarithmic
- **Differentiation.**
  - Limits and continuity
  - Rates of change.
  - Techniques of differentiation--power, sum, difference, product, quotient, and chain rules.
  - Implicit differentiation.
  - Higher derivatives.
  - Graph sketching.
  - Extrema--maxima and minima.
  - Related rates.
  - Special applications such as Poiseuille's law, sensitivity to drugs, and population growth.
- **Integration**

- Antiderivatives and the definite integral.
- The Fundamental of Integral Calculus.
- Techniques of integration--substitution, integration by parts, partial fractions.
- Tables of integrals.
- Numerical approximation of integrals.
- Applications of the integral and solutions of elementary differential equations.

Suggested textbooks

- Larson, *Applied Calculus for Life & Social Sciences*, ISBN 978-0-618-96259-4

Last updated

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