

Absolutely! Here are the core topics in each area that are most relevant to machine learning, deep learning, and computer vision:

Calculus

- Limits and continuity
 - Derivatives (single and multivariable)
 - Partial derivatives
 - Chain rule
 - Gradients
 - Jacobian and Hessian matrices
 - Optimization (finding minima/maxima)
 - Taylor series expansion
 - Integrals (basic understanding; not as critical, but useful for some ML theory)
-

Linear Algebra

- Scalars, vectors, matrices, tensors
 - Matrix addition, subtraction, multiplication
 - Matrix transpose
 - Identity and inverse matrices
 - Determinants
 - Rank of a matrix
 - Systems of linear equations
 - Eigenvalues and eigenvectors
 - Diagonalization
 - Orthogonality and orthonormality
 - Projections
 - Singular Value Decomposition (SVD)
 - Vector spaces and basis
-

Statistics

- Types of data (discrete, continuous)
- Measures of central tendency (mean, median, mode)
- Measures of spread (variance, standard deviation, range, IQR)
- Skewness and kurtosis
- Covariance and correlation
- Sampling and sampling distributions

- Law of large numbers, Central Limit Theorem
 - Hypothesis testing (z-test, t-test, p-values, confidence intervals)
 - Outliers and boxplots
 - Probability distributions (normal, binomial, Poisson, etc.)
-

Probability

- Basic probability rules (addition, multiplication)
- Conditional probability
- Bayes' theorem
- Independence and dependence
- Joint, marginal, and conditional distributions
- Random variables (discrete and continuous)
- Probability mass function (PMF) and probability density function (PDF)
- Expectation, variance, moments
- Common distributions (Bernoulli, Binomial, Normal, Poisson, Exponential)
- Law of total probability