Quantitative Skills used in this course:

- Convert Units
- Scientific Notation
- Slopes of lines
- Pythagorean Theorem
- Area and volume of simple regions
- Triangle Trigonometry
- Trigonometric functions
- Manipulating Exponents
- Logarithms
- Derivative: slope
- Derivative: error analysis
- Derivative: rate
- Integral: area, volume
- Integral: accumulation of small changes
- Log-Linear and Log-Log plots
- Exponential growth/decay
- Approximations of functions
- Vectors
- Partial Derivatives
- Gradients
- Level sets, contours, and surfaces
- Vector fields, Flux, Divergence
- Coordinate Systems
- Systems of equations
- Linear Transformations
- Matrices
- Eigenvalues and eigenvectors
- Data Analysis
- Design of experiments
- Sampling
- Hypothesis testing
- Probability
- Distributions
- Random Variables
- Curve Fitting
- Regression
- Analysis of Variance
- Waves: wavelength, period, amplitude
- Mechanical Systems, Oscillators
- Differential Equations
- Systems of ODEs
- Partial Differential Equations
- Fourier Series/Transforms
- Spectral analysis
- Newton's laws
- Force, Work, Energy, Power
- Elementary programming
- Mathematical software
- Spreadsheets