Engineering Major → Math Minor

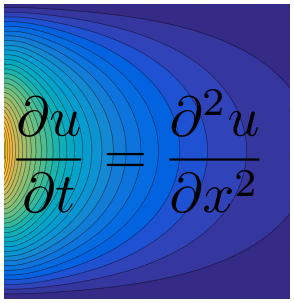
A Mathematics Minor is attainable by taking three additional math courses above many engineering major math course requirements*:

- Take two upper division math classes, one with a pre-req of 1220 or 1320 and one 4200-level or above
- Take Math 3210 (foundations of analysis)
- See Math Advisors (LCB 214 or CSC 240) advisor@math.utah.edu for details

*applies to ME, ChE (with 3150/3160), and MatSci majors; EE take one less course, and BioE, Civil take one more.

$$\frac{dx}{dt} = f(x)$$

Math 5470 Chaos and Nonlinear Dynamics. Equilibria, stability, and bifurcations, oscillations, attractors, chaos, fractals. Applications to fluid flow, genetic control systems, population dynamics, etc..



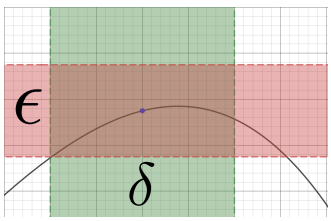
Math 5440 Intro to PDEs. An in-depth study of linear PDE and Fourier analysis, giving students a solid foundation for classical physical problems– heat, diffusion, wave, Laplace's and Poisson's equations in 1, 2, and 3D.

$$x_{n+1} = x_n + \frac{f(x_n)}{f'(x_n)}$$

$$\mathbf{Ax} = \mathbf{b}$$

Math 5610 Intro to Numerical Analysis. Numerical solution methods for linear and nonlinear algebraic equations, matrix factorizations, curve fitting, splines, fast Fourier transform.

$$\epsilon > |f(x) - f(a)|$$
$$\delta > |x - a|$$

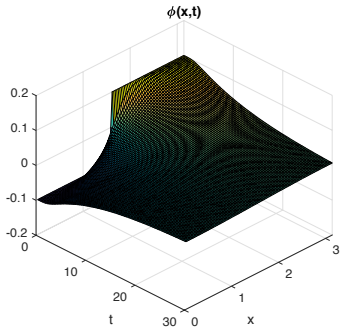


Math 3210 Foundations of Analysis. Construction of the real number field, and analysis of functions. A rigorous development of the calculus: convergence, continuity, derivatives, and integration.

Math 2270 Linear Algebra. Matrix algebra, vector spaces, matrix factorizations –LU, QR, SVD–and applications, linear transformations, eigen analysis.

$$\begin{bmatrix} a_{11} & \cdots \\ \vdots & \ddots \\ & a_{i,j} \end{bmatrix}$$

Math 5740 Mathematical Modeling. Explore diverse mathematical modeling topics covering both classical physical and contemporary scientific applications ranging from population dynamics to composite materials.



Math 2200 Discrete Mathematics. Fundamentals of logic, sets, number theory, modular arithmetic, combinatorics, probability. Gives a good foundation for computer science courses.

$$A \cup B$$
$$\Longrightarrow$$
$$c \prec d$$

Math 4600 Mathematics in Medicine and Physiology. Use dynamical systems, stochastic processes and partial differential equations to study models of biological processes: heart and circulation, mass action and reaction kinetics, nerve impulses, epidemics, immune system dynamics, genetics.