

## MTH/STT Service Courses

as of 10/16/09

Course Title	Quarter		Semester		Plcmnt/Prereq	Description
Math in the Modern World	MTH 145	4 hr	MTH 1450	3 hr	MPL3/DEV095	An application of mathematics to modeling real world problems from the behavioral, computational, managerial, and social sciences. Includes such topics as probability, descriptive and inferential statistics, financial management, voting systems and codes and data storage.
Intermediate Algebra	MTH 126 or MTH127	5 hr or 3 hr	MTH 1260	3 hr	MPL3/DEV095	Best suited for students with a good background in elementary algebra. Topics include factoring, rational expressions and equations, exponents, radicals, quadratic equations and applications, equations involving radicals or rational exponents and linear equations.
Math Concepts for Teachers	MTH 143	4 hr	MTH 2430	3 hr	MPL4/MTH1260	
	MTH 243	4 hr	MTH 2431	3 hr	MTH2430	
	MTH 244	4 hr	MTH 2440	3 hr	MTH2431	
College Algebra	MTH 128 or MTH129	5 hr or 3 hr	MTH 1280	3 hr	MPL4/MTH1260	Best suited for students with a good background in intermediate algebra. Topics include graphs of linear, polynomial and rational functions, exponential and logarithmic functions and equations, and systems of equations.
Pre Calculus	MTH 130	5 hr	MTH 1340	4 hr	MPL4/MTH1260	Topics covered include functions and graphs, polynomial and rational functions, trigonometric and inverse trigonometric functions, conics, systems of equations, exponential and logarithmic functions, geometric series, binomial theorem.
	MTH 131	3 hr				
Applied Calculus	MTH 228	5 hr	MTH 2240	4 hr	MPL5/MTH 1280 or 1340	Functions (including exponential and logarithmic functions), limits, derivatives and rates of change, applications of derivatives including graphing and optimization, and indefinite and definite integrals with applications. Not for credit to students with credit for MTH 2300 and 2310.
Business Calculus	MTH 228	5 hr	MTH 2280	4 hr	MPL5/MTH 1280 or 1340	Functions (including exponential and logarithmic functions), business applications, limits, derivatives and rates of change, applications of derivatives including graphing and optimization, and indefinite and definite integrals with applications. Not for credit to students with credit for MTH 2300 and 2310.
Calculus	MTH 229	5 hr	MTH 2300	4 hr	MPL7/MTH 1340	Limits, the derivative, differentiation, and applications of the derivative. Antiderivatives, Riemann sums, the definite integral, fundamental theorem of calculus.
	MTH 230	5 hr	MTH 2310	4 hr	MTH 2300	Integration techniques, applications of the definite integral, first-order differential equations, vectors and vector operations, parametric equations and polar coordinates, infinite series.
	MTH 231	5 hr				
	MTH 232	5 hr	MTH 2320	4 hr	MTH 2310	Vector functions and their derivatives, motion in two and three dimensions, lines, planes, and parametric surfaces, spherical and cylindrical coordinates. Partial derivatives and multiple integrals in two and three dimensions. Vector fields, line and surface integrals. Green's, Divergence, and Stoke's theorems.

Diff Eq/Matrix Algebra	MTH 235	5 hr	MTH 2350	4 hr	MTH 2310	Introduction to differential equations with matrix theory. Topics include matrices, determinants, vector spaces, least squares solutions, eigenvalues/eigenvectors, matrix diagonalization; first order differential equations, second and higher order linear equations, forced oscillations, systems of linear differential equations, phase plane, and Laplace transforms.
Diff Eq	MTH 233	5 hr	MTH 2330	3 hr	MTH 2310	Elementary first order equations, linear equations, linear systems, series solutions, Laplace transform, and applications. Uniqueness and existence theorems for solutions.
Matrix Algebra	MTH 253	3 hr	MTH 2530	3 hr	MTH 2300	Topics include matrices and their operations, linear systems of equations, Gaussian elimination, determinants, geometry of Euclidean space, subspaces, linear independence, basis, dimension and rank, orthogonality and the Gram-Schmidt process, linear transformations, eigenvalues and eigenvectors, and diagonalization.
Discrete Math for Computing	MTH 257	3 hr	MTH 2570	3 hr	MPL5/MTH 1280 or 1340	Discrete mathematics useful in computing. Emphasis on mathematical induction, recurrence relations, asymptotic behavior of functions, and algorithm analysis.
Stat Concepts	STT 160	5 hr	STT 1600	4 hr	MPL4/MTH1260	An introduction to the fundamental ideas of statistics. Topics include descriptive statistics, probability, confidence intervals, and testing hypotheses, as well as the basic of Chi-square tests, regression and correlation, and analysis of variance. This course has a 1-hour/week lab that uses the Excel software.
Elementary Stat	STT 264	4 hr	STT 2640	4 hr	MPL4/MTH1260	Numerical and graphical methods for finding and summarizing important features of data. Principles of designing experiments for collecting data. Introduction to probability. Confidence intervals and hypothesis testing introduction. Applications to means, proportions, two-sample comparisons, contingency tables, linear regression, and analysis of variance. Use of statistical computing package to apply methods to data sets.
	STT 265	4 hr				
Engineering Stat	STT 363	3 hr	STT 3630	3 hr	MTH 2320	Introduction to probability and statistical methods using calculus and matrix algebra to develop the necessary theory. Topics include descriptive statistics, probability, confidence intervals, hypothesis testing, regression and correlation, and analysis of variance.
Biostatistics	STT 430	3 hr	STT 4300	3 hr	STT 2640	The statistical methods suitable for analysis of data arising in biological and related studies. Estimation and hypothesis testing are reviewed. Methods include one and two sample tests, simple and multiple regression, and analysis of variance.