Mathematics / Statistics / Econometrics Courses. Graduate-Level Courses are highlighted.

Subject	Course Number and Name	Textbook	Outline	Grade	Closest Course at UChicago
Real Analysis (Graduate Level)	MATH 7201 Real Analysis (I)	1. Stein and Shakarchi, Real Analysis 2. Zygmund and Wheeden, Measure and Integral	Measure Theory (Carathéodary's Characterization, Littlewood's Three Principles), Integration Theory (MCT, DCT, BCT, Fubini's Theorem)	A+	MATH 27100 Measure and Integration
Econometric Theory (Graduate Level)	ECON 7206 Econometric Theory (II)	Bruce E. Hansen, Econometrics	OLS, GLS, IV, GMM, MLE, Aymptotic Theory	A-	PPHA 42000 Applied Econometrics I (PhD Level)
Probability	MATH 2502 Introduction to Probability Theory	1. Sheldon Ross, A First Course in Probability 2. Patrick Billingsley, Probability and Measure	Kolmogorov's Axioms, sigma-algebra, Dynkin's pi-lambda Lemma, Random Variables, Modes of Convergence of Random Variables, SLLN, Lindeberg CLT, Markov Chains, MCMC	A-	STAT 25100 Introduction to Mathematical Probability
Statistics	ECON 2022 Statistics with Recitation	Chinese Textbook. Topics: Random Variables, Common Distributions, Point Estimation, Interval Estimation, Hypothesis Testing	Common Distributions (binomial, normal, chi-squared, t, poisson, expenential), Point Estimation (Analogy Principle, MLE), Unbiasedness, Consistency, Confidence Interval, Hypothesis Testing (z-test, t-test, chi-squared test)	A+	STAT 22000 Statistical Methods and Applications
Multivariate Calculus	MATH 4006 CALCULUS (I)	James Stewart, Calculus	-	A+	MATH 15100 Calculus I MATH 15200 Calculus II MATH 15300 Calculus III
	MATH 4007 CALCULUS (II)	James Stewart, Calculus	-	B	
	MATH 4008 CALCULUS (III)	James Stewart, Calculus	-	A	
Linear Algebra	MATH 1103 / ECON 5132 Linear Algebra (I)	Friedberg, Insel and Spence, Linear Algebra	Vector Spaces, Linear Transformations, Change of Basis, Diagonalization, Characteristic Polynomial, Jordan Normal Form	A-	MATH 19620 Linear Algebra MATH 20250 Abstract Linear Algebra
	MATH 1104 / ECON 5133 Linear Algebra (II)	Friedberg, Insel and Spence, Linear Algebra	Jordan/Rational Canonical Form, Minimal Polynomial, Dual Spaces, Inner Product Spaces, Bilinear and Quadratic Forms	A	
Analysis	MATH 2213 Introduction to Mathematical Analysis (I)	Tom Apostol, Mathematical Analysis	Point-Set Topology, Metric Spaces, Convergence of Sequences, Differentiation, Riemann-Stieljes Integral (Lebsgue's theorem)	A-	MATH 20300 Analysis in Rn I MATH 20400 Analysis in Rn II MATH 20500 Analysis in Rn III
	MATH 2213 Introduction to Mathematical Analysis (II)	1. Tom Apostol, Mathematical Analysis 2. Zygmund and Wheeden, Measure and Integral	Multivariable Differentiation (InFT, ImFT), Multivariable Intgration, Space of Continous Functions (Arzelà Ascoli theorem), Lebsgue measure and integral	A-	
Differential Equations	MATH 2217 Introduction to Ordinary Differential Equations	Boyce and DiPrima, Elementary Differential Equations and Boundary Problems	First Order/ Second Order Differential Equations, Series Solutions, Laplace Transform, Systems of First Order Linear Equations, Numerical Methods	B+	MATH 27300 Basic Theory of Ordinary Differential Equations
	MATH 2218 Introduction to Partial Differential Equations	1. Walter Strauss, Partial Differential Equations 2. Gilbarg and Trudinger, Ellipic Partial Differential Equations of Second Order	Wave and Diffusions, Fourier Series, Subharmonic/Superharmonic Functions, Harnack's Inequailtiy, Green's idendity and Functions	A	-

Complex Analysis	MATH 5230 Introduction to Complex Analysis	1. John Conway, Functions of One Complex Variable 2. Lars Valerian Ahlfors, Complex Analysis	Analytic Functions, Complex Integration, Maximum Modulus Theorem, Space of Analytic Functions, Analytic Continuation	A	MATH 27000 Basic Complex Variables
Abstract Algebra	MATH 2213 Introduction to Algebra (I)	Dummit and Foote, Abstract Algebra	Group Theory	C+	MATH 25400 Basic Algebra I MATH 25500 Basic Algebra II
	MATH 2114 Introduction to Algebra (II)	Dummit and Foote, Abstract Algebra	Ring Theory, Field Theory, Galois Theory	A	
Geometry	MATH 5356 Introduction to Geometry	Manfredo Do Carmo, Differential Geometry of Curves and Surfaces	Curves (Frenet Frame, Fundamental Theorem of the Local Theory of Curves), Surface (First and Second Fundamental Form, Geodesics, Theorema Egregium, Gauss-Bonnet Theorem)	A+	MATH 26500 Introduction to Riemannian Geometry
Computational Mathematics	MATH 3604 Introduction to Computational Mathematics	Tobin A. Driscoll and Richard J. Braun, Fundamentals of Numerical Computation	Language: Python Square Linear Systems, Overdetermined Linear Systems, Roots of Nonlinear Equations, Piecewise Interpolation	A-	-