

17015B Mathematical Sciences Domains/SLOs:	Matrix Theory MAS5145	MathStat II STA5326	Numerical Analysis MAD6405	Real Analysis MAA6306	Complex Analysis MAA6426	Math Modeling MAP6108	Operations Research I MAP6106	Modeling in Regression STA6990	Multivariate Methods STA6107	Design of Experiment STA6247	Proseminar MAT6930/ STA6930
Content											
Discuss, describe and apply principles of abstract mathematics, applied mathematics, and statistics by deriving and proving theorems, and modeling real life situations.	x	x	x	x	x	x	x	x	x	x	
Solve conceptual problems that require writing and evaluating proofs.	x			x	x						
Perform computations and algorithms important to the theory of matrices such as finding eigenvalues/eigenvalues, special matrix factorizations and decompositions, and Jordan Canonical forms.	x								x		
Model real life phenomenon, which frequently in physics, engineering and other sciences, mathematically, and apply mathematical objects such as partial differential equations and linear systems.	x	x	x			x	x	x	x		
Solve problems related to discrete and continuous distributions, and expectations for special distributions.		x							x		
Explain, select and perform the different types of statistical models and tests such as regression models, multivariate tests, UMP tests, and SPR tests.		x					x	x	x		
Design experiments, and select and perform data analyses using ANOVA, categorical techniques and regression models, and other important statistical models and tests.							x	x	x	x	
Critical Thinking											
Analyze the essentials of a problem logically and independently.	x	x	x	x	x	x	x	x	x	x	x
Select and apply appropriate mathematical and statistical tools and techniques.	x	x	x	x	x	x	x	x	x	x	x
Draw conclusions through the use of modern mathematical and statistical software such as SAS, SPSS, Minitab, and MatLab.			x					x	x		x

Compare alternate mathematical or statistical models to select optimal parameter settings.		x				x	x	x	x	x	x
Use mathematical and statistical software, and other information technology appropriately to conduct research.			x			x	x	x	x		x
Communication											
Write coherent and accurate reports of mathematical processes and problems using appropriate professional language.											x
Deliver oral presentations appropriate for professional settings that explain math concepts or defend mathematical arguments effectively and accurately.											x
Integrity/Values											
Recognize ethical components in complex situations.	x	x				x	x	x	x	x	x
Analyze complex ethical situations and design appropriate solutions.										x	x
Project Management											
Work toward solutions with persistence and relatively little guidance.											x
Manage time and resources effectively.											x
Collaborate with team members smoothly and effectively.						x			x	x	

updated 4/22/14