Contemporary Linear Algebra

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ABOUT THE AUTHORS

Howard Anton obtained his B.A. from Lehigh University, his M.A. from the University of Illinois, and his Ph.D. from the Polytechnic University of Brooklyn, all in mathematics. In the early 1960s he worked for Burroughs Corporation and Avco Corporation at Cape Canaveral, Florida (now the Kennedy Space Center), on mathematical problems related to the manned space program. In 1968 he joined the Mathematics Department at Drexel University, where he taught full time until 1983. Since then he has been an adjunct professor at Drexel and has devoted the majority of his time to textbook writing and projects for mathematical associations. He was president of the Eastern Pennsylvania and Delaware section of the Mathematical Association of America (MAA), served on the Board of Governors of the MAA, and guided the creation of its Student Chapters. He has published numerous research papers in functional analysis, approximation theory, and topology, as well as various pedagogical papers. He is best known for his textbooks in mathematics, which have been widely used for more than thirty years. There are currently more than 125 versions of his books used throughout the world, including translations into Spanish, Arabic, Portuguese, Italian, Indonesian, French, Japanese, Chinese, Hebrew, and German. In 1994 he was awarded the Textbook Excellence Award by the Textbook Authors Association. For relaxation, Dr. Anton enjoys traveling, photography, and art.

Robert C. Busby obtained his B.S. in physics from Drexel University and his M.A. and Ph.D. in mathematics from the University of Pennsylvania. He taught at Oakland University in Rochester, Michigan, and since 1969 has taught full time at Drexel University, where he currently holds the position of Professor in the Department of Mathematics and Computer Science. He has regularly taught courses in calculus, linear algebra, probability and statistics, and modern analysis. Dr. Busby is the author of numerous research articles in functional analysis, representation theory, and operator algebras, and he has coauthored an undergraduate text in discrete mathematical structures and a workbook on the use of *Maple* in calculus. His current professional interests include aspects of signal processing and the use of computer technology in undergraduate education. Professor Busby also enjoys contemporary jazz and computer graphic design. He and his wife, Patricia, have two sons, Robert and Scott.

CONTENTS

GUIDE FOR THE INSTRUCTOR

Number of Lectures

The Syllabus Guide below provides for a 29-lecture core and a 35-lecture core. The 29-lecture core is for schools with time constraints, as with abbreviated summer courses. Both core programs can be supplemented by starred topics as time permits. The omission of starred topics does not affect the readability or continuity of the core topics.

Pace

The core program is based on covering one section per lecture, but whether you can do this in every instance will depend on your teaching style and the capabilities of your particular students. For longer sections we recommend that you just highlight the main points in class and leave the details for the students to read. Since the reviews of this text have praised the clarity of the exposition, you should find this workable. If, in certain cases, you want to devote more than one lecture to a core topic, you can do so by adjusting the number of starred topics that you cover.

By the end of Lecture 15 the following concepts will have been covered in a basic form: linear combination, spanning, subspace, dimension, eigenvalues, and eigenvectors. Thus, even with a relatively slow pace you will have no trouble touching on all of the main ideas in the course.

Organization

It is our feeling that the most effective way to teach abstract vector spaces is to place that material at the end (Chapter 9), at which point it occurs as a "natural generalization" of the earlier material, and the student has developed the "linear algebra maturity" to understand its purpose. However, we recognize that not everybody shares that philosophy, so we have designed that chapter so it can be moved forward, if desired.

SYLLABUS GUIDE

35-Lecture Course		CONTENTS	29-Lecture Course
Chapter 1		**Vectors**	**Chapter 1**
1	1.1	Vectors and Matrices in Engineering and Mathematics; n-Space	1
2	1.2	Dot Product and Orthogonality	2
3	1.3	Vector Equations of Lines and Planes	3
Chapter 2		**Systems of Linear Equations**	**Chapter 2**
4	2.1	Introduction to Systems of Linear Equations	4
5	2.2	Solving Linear Systems by Row Reduction	5
*	2.3	Applications of Linear Systems	*
Chapter 3		**Matrices and Matrix Algebra**	**Chapter 3**
6	3.1	Operations on Matrices	6
7	3.2	Inverses; Algebraic Properties of Matrices	7
8	3.3	Elementary Matrices; A Method for Finding A^{-1}	8
9	3.4	Subspaces and Linear Independence	9
10	3.5	The Geometry of Linear Systems	10
11	3.6	Matrices with Special Forms	11
*	3.7	Matrix Factorizations; LU-Decomposition	*
12	3.8	Partitioned Matrices and Parallel Processing	12
Chapter 4		**Determinants**	**Chapter 4**
13	4.1	Determinants; Cofactor Expansion	13
14	4.2	Properties of Determinants	*