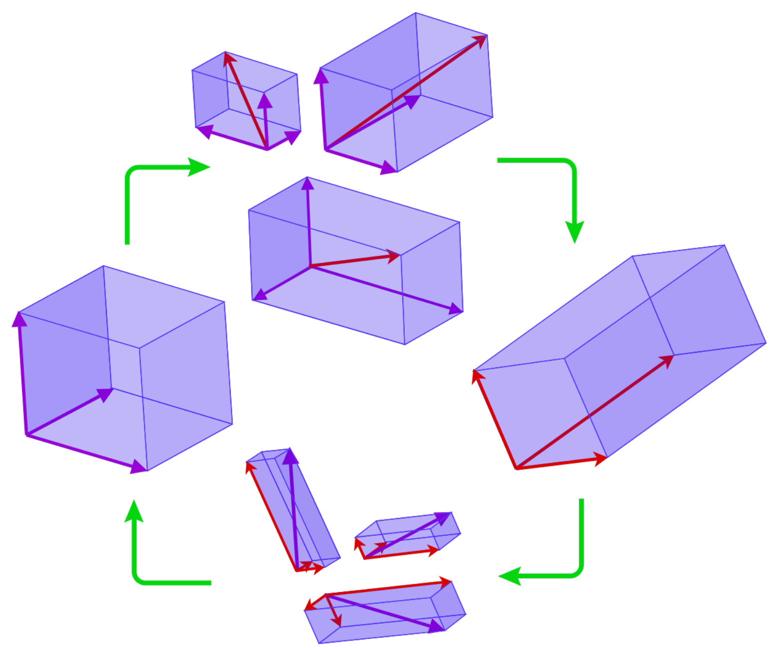
Applied Linear Algebra

MAT 3341

Spring/Summer 2019



Alistair Savage

Department of Mathematics and Statistics

University of Ottawa

Contents

Preface

These are notes for the course *Applied Linear Algebra* (MAT 3341) at the University of Ottawa. This is a third course in linear algebra. The prerequisites are uOttawa courses MAT 1322 and (MAT 2141 or MAT 2342).

In this course we will explore aspects of linear algebra that are of particular use in concrete applications. For example, we will learn how to factor matrices in various ways that aid in solving linear systems. We will also learn how one can effectively compute estimates of eigenvalues when solving for precise ones is impractical. In addition, we will investigate the theory of quadratic forms. The course will involve a mixture of theory and computation. It is important to understand *why* our methods work (the theory) in addition to being able to apply the methods themselves (the computation).

Acknowledgements: I would like to thank Benoit Dionne and Mike Newman for sharing with me their lecture notes for this course.

Alistair Savage

Course website: `https://alistairsavage.ca/mat3341`

Chapter 1

Matrix algebra

These notes will be updated before the course begins.

Bibliography